



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
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Seattle, WA 98115

Refer to:

OSB1997-0711

March 18, 1997

Mr. Robert W. Williams, Regional Forester  
Pacific Northwest Region, Region 6  
USDA Forest Service  
333 S.W. First Avenue  
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Portland, Oregon 97208

Ms. Elaine Y. Zielinski  
State Director, OR/WA  
USDI Bureau of Land Management  
1515 S.E. Fifth Avenue  
Portland, Oregon 97208

Re: Endangered Species Act Section 7 Conference Opinion on Continued Implementation of U.S.  
Forest Service Land and Resource Management Plans and Bureau of Land Management  
Resource Management Plans, consultation number [711]

Dear Mr. Williams and Ms. Zielinski:

Enclosed is the biological opinion and conference opinion (opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on continued implementation of U.S. Forest Service (USFS) Land and Resource Management Plans (LRMPs) for Rogue River, Siskiyou, Siuslaw, Umpqua, and Winema National Forests and Bureau of Land Management (BLM) Resource Management Plans (RMPS) for Coos Bay, Eugene, Medford, Roseburg, and Salem and the Bureau of Land Management Resource Management Plan (RMP) for the Salem Districts. These LRMPs and RMPs fully incorporate the management direction from the April 13, 1994, record of Decision for Amendments to USFS and BLM Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest plan).

The NMFS has determined that continued implementation of the LRMP and RMPs for the ten administrative units is not likely to jeopardize the continued existence of listed Umpqua River cutthroat trout, proposed Oregon coast or southern Oregon/northern California coho salmon, Oregon coast or Klamath Mountains Province steelhead, or candidate chinook salmon, chum salmon, or coastal cutthroat trout. This determination was based on a number of conclusions and assumptions stated in the Opinion, including the following



1. Implementation of management direction provided in the LRMPs and RMPs, which includes the NFP ACS, will result in improved habitat conditions for salmonids considered in this opinion over the next few decades and into the future. Implementation of actions consistent with the ACS objectives and components will provide habitat of sufficient quality, distribution, and abundance to allow coastal cutthroat trout, coho salmon, steelhead, chinook salmon, and chum salmon populations to stabilize, well distributed, within ownership of the ten administrative units
2. Improved habitat conditions for salmonids considered in this opinion will result in increased survival of the freshwater life-stages of these fish.
3. Current and future monitoring efforts, including regional implementation and effectiveness monitoring programs, will facilitate the adaptive management process in determining whether changes in land allocations or standards and guidelines are needed in order to achieve management plan goals and ACS objectives.

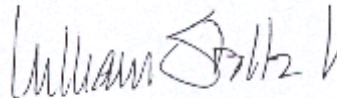
The NMFS also evaluated the general effects of certain programmatic actions that would be implemented pursuant to management direction in the LRMPs and RMPs. These programmatic actions include actions considered to be beneficial to the species (i.e., in-stream habitat enhancement and restoration projects, culvert replacement upgrades, and road decommissioning projects), as well as non-beneficial action (i.e., road construction, livestock grazing, mining, and riparian rock quarry operation). NMFS was unable to conclude formal or informal consultation for any specific projects that fall within these seven categories of programmatic actions addressed in this opinion. However, terms and conditions are provided for these actions to further streamline and expedite future section 7 consultation. Expedited consultation is based on the following assumptions:

1. Level 1 and 2 teams, as established in the May 31, 1995, interagency consultation streamlining agreement, will follow the August 29, 1995, and February 26, 1997, interagency consultation processes to ensure that future individual and grouped USFS and BLM actions are consistent with ACS objectives and include appropriate measures to avoid or minimize adverse effects to listed, proposed or candidate salmonid species.
2. Use of consistent, agreed-upon effects determination methodology (making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale, NMFS 1996) will support efficient, accurate assessments of the environmental baseline and will further ensure that future individual and grouped USFS and BLM actions are consistent with ACS objectives important to listed, proposed or candidate salmon species.

The opinion also provides conservation recommendations relative to ecosystem analysis, watershed restoration, adaptive management, road and timber sale planning, mining, grazing, and monitoring that are designed to further conserve listed, proposed, and candidate salmon species and further streamline future section 7 consultations for proposed actions.

If you have any questions please contact Micheal Tehan at (503) 326 - 6276, or Steve Morris at (503) 231-2308.

Sincerely,

A handwritten signature in dark ink, appearing to read "William Stelle, Jr.", with a stylized flourish at the end.

William Stelle, Jr.  
Regional Administrator

Enclosures

cc: Bill Hudson - BLM  
Scott Woltering - USFS  
SCLDF

USFS Forest Supervisors - Rogue River, Siskiyou, Siuslaw, Umpqua, and Winema National Forests

Bureau of Land Management District Managers - Coos Bay, Eugene, Medford, Roseburg, and Salem Districts

Endangered Species Act - Section 7  
Consultation

BIOLOGICAL OPINION  
AND  
CONFERENCE OPINION

Implementation of Land and Resource Management Plans  
(USFS) and Resource Management Plans (BLM)

Agencies:       USDA Forest Service: Rogue River, Siskiyou,  
                  Siuslaw, Umpqua, and Winema National Forests  
                  USDI Bureau of Land Management: Coos Bay, Eugene,  
                  Medford, Roseburg, and Salem Districts

Consultation

Conducted By: National Marine Fisheries Service  
                  Northwest Region

Date Issued: March 18, 1997

Refer to:       OSB1997-0711

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- ATTACHMENT 1    Biological requirements and status under 1996 environmental baseline: Umpqua River cutthroat trout, Oregon Coast coho salmon, Southern Oregon/Northern California coho salmon, Oregon Coast steelhead, Klamath Mountain Province steelhead, and chum salmon
- ATTACHMENT 2    Application of Endangered Species Act Standards to Umpqua River Cutthroat Trout; Oregon Coast and Southern Oregon/Northern California coho salmon; Oregon Coast and Klamath Mountain Province steelhead trout; and chum salmon for Federal Land Management Consultations
- ATTACHMENT 3    Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale

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## Executive Summary

This biological and conference opinion was prepared by the National Marine Fisheries Service (NMFS) in response to the January 17, 1997, request from the Forest Service (USFS) and Bureau of Land Management (BLM) for conference and consultation regarding the potential effects of five USFS National Forest Land and Resource Management Plans (LRMPs) and five BLM District Resource Management Plans (RMPs) on listed Umpqua River (UR) cutthroat trout, proposed Oregon Coast (OC) coho salmon, southern Oregon/northern California (SONC) coho salmon, Oregon Coast (OC) steelhead trout, and Klamath Mountains Province (KMP) steelhead trout, and candidate chinook salmon, chum salmon, and coastal cutthroat trout. The affected administrative units include the Rogue River, Siskiyou, Siuslaw, Umpqua, and Winema National Forests and the Coos Bay, Eugene, Medford, Roseburg, and Salem BLM Districts.

The LRMPs and RMPs establish broad management direction through goals, objectives, desired future conditions, and/or standards and guidelines. They also establish goals and objectives regarding where, when, and how goods and services will be produced. Each of the ten LRMPs and RMPs have either been amended by or fully incorporate the management goals and objectives, land allocations, and standards and guidelines of the Northwest Forest Plan *Record of Decision* (NFP ROD). A primary component of the NFP, the Aquatic Conservation Strategy (ACS), was designed to protect salmon and steelhead habitat on Federal lands managed by the USFS and BLM by maintaining and restoring ecosystem health at watershed and landscape scales.

The NMFS determined, based on the information and analysis described in this Opinion and attachments, that implementation of the LRMPs and RMPs for the ten administrative units is not likely to jeopardize the continued existence of UR cutthroat trout, OC or SONC coho salmon, OC or KMP steelhead, chinook salmon, chum salmon, or coastal cutthroat trout. This determination was based on a number of conclusions and assumptions including the following:

1. Implementation of management direction provided in the LRMPs and RMPs, which includes the components of the NFP ACS, will result in improved habitat conditions for Pacific salmonids considered in this Opinion over the next few decades and into the future. Implementation of actions consistent with the ACS objectives and components - including watershed analysis, watershed restoration, reserve and refugia land allocations



(riparian reserves, key watersheds, late successional reserves, etc.) and associated standards and guidelines - will provide high levels of aquatic ecosystem understanding, protection, and restoration for aquatic species.

2. Improved habitat conditions for salmonids considered in this Opinion will result in increased survival of the freshwater life-stages of these fish.
3. The Forest Ecosystem Management Assessment Team (FEMAT) determined that implementation of the NFP amendments to LRMPs and RMPs would result in an 80% or greater likelihood of providing sufficient aquatic habitat to support stable, well distributed populations of Pacific salmonids, as they occur on and are affected by the Federal lands within the subject administrative units.
4. Current and future monitoring efforts, including regional implementation and effectiveness monitoring programs, will facilitate the adaptive management process in determining whether changes in land allocations or standards and guidelines are needed in order to achieve LRMP and RMP goals and ACS objectives.

The NMFS also evaluated the general effects of certain programmatic actions that would be implemented pursuant to management direction in the LRMPs and RMPs. These programmatic actions include actions considered to be beneficial to the species (i.e., instream habitat enhancement and restoration projects, culvert replacement upgrades, and road decommissioning projects), as well as certain non-beneficial actions (i.e., road construction, livestock grazing, mining, and riparian rock quarry operation). NMFS was unable to conclude formal or informal consultation for any specific projects that fall within these seven categories of programmatic actions addressed in this Opinion. However, terms and conditions are provided for these actions to further streamline and expedite future section 7 consultation. Expedited consultation is based on the following assumptions:

1. Level 1 and 2 teams, as established in the May 31, 1995, interagency consultation streamlining agreement, will follow the August 29, 1995, and February 26, 1997, interagency consultation processes to ensure that future individual and grouped USFS and BLM actions are consistent with ACS objectives and include appropriate measures to avoid or minimize adverse effects to listed, proposed, or candidate salmonid species.

2. Use of a consistent, agreed-upon effects determination methodology (Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale, NMFS 1996) will support efficient, accurate assessments of the environmental baseline and will further ensure that future individual and grouped USFS and BLM actions are consistent with ACS objectives important to listed, proposed, or candidate salmonid species.
3. Level 1 teams will apply the Matrix and Checklist when making determinations of effect (e.g., NLAA or LAA) for all future USFS and BLM actions. Use of the Checklist and interagency discussions by Level 1 teams will constitute informal consultation for NLAA actions. In cases where Level 1 teams agree on NLAA effect determinations, NMFS will conclude informal consultation with memoranda to the files and action agencies documenting concurrence with the determination.
4. This Opinion, use of the Matrix and Checklist, and interagency discussions during future Level 1 team meetings will satisfy formal consultation requirements for LAA actions for which Level 1 teams have determined and documented that no additional measures are needed to avoid or minimize adverse effects to listed species beyond those listed in the incidental take statement of this Opinion. The NMFS will tier section 7 compliance to this Opinion via memoranda to the file and action agencies. The USFS and BLM will update the environmental baseline. In cases where Level 1 teams determine that additional measures to avoid or minimize adverse effects are necessary, the NMFS will need to prepare a new biological opinion to conclude formal consultation.

Finally, the NMFS provides conservation recommendations relative to ecosystem analysis, watershed restoration, adaptive management, road and timber sale planning, mining, grazing, and monitoring that are designed to further conserve listed, proposed, and candidate salmonid species and further streamline future section 7 consultations for proposed actions.

## I. Background

On January 17, 1997, the National Marine Fisheries Service (NMFS) received from the Regional Forester, Region 6, of the USDA Forest Service (USFS) and the State Director, Oregon and Washington, of the Bureau of Land Management (BLM) a biological assessment (BA) and letter requesting conference and consultation regarding the potential effects of coastal Oregon USFS and BLM land management plans, programs and actions on listed, proposed and candidate Pacific salmonid species. Management plans for which conferencing and consultation were requested include five National Forest (NF) Land and Resource Management Plans (LRMPs) and five BLM District Resource Management Plans for the Coastal Oregon area. The specific LRMPs, RMPs, programs, and actions for which conferencing and consultation were requested are described in section II. of this biological and conference opinion (Opinion).

The specific listed Evolutionarily Significant Unit (ESU)<sup>1</sup>, proposed ESUs, and candidate species considered in the biological assessment (BA) and in this Opinion are:

### ESU Listed as Endangered:

Umpqua River coastal cutthroat trout  
(*Oncorhynchus clarki clarki*)

### ESUs Proposed as Threatened:

1. Oregon Coast coho salmon (*Oncorhynchus kisutch*)
2. Northern California/Southern Oregon coho salmon (*Oncorhynchus kisutch*)
3. Oregon Coast steelhead trout (*Oncorhynchus mykiss*)
4. Klamath Mountains Province steelhead trout (*Oncorhynchus mykiss*)

### Candidate Species:

1. Chinook salmon (*Oncorhynchus tshawytscha*)
2. Chum salmon (*Oncorhynchus keta*)
3. Coastal cutthroat trout (*Oncorhynchus clarki clarki*)

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<sup>1</sup> For the purposes of conservation under the Endangered Species Act, an Evolutionarily Significant Unit (ESU) is a distinct population segment that is substantially reproductively isolated from other conspecific population units and represents an important component in the evolutionary legacy of the species (Waples 1991).

This Opinion has been completed pursuant to the Endangered Species Act (ESA) and its implementing regulations (50 CFR § 402), and constitutes (1) formal consultation for listed Umpqua River (UR) cutthroat trout; (2) formal conference for proposed Oregon Coast (OC) coho salmon, southern Oregon/northern California (SONC) coho salmon, Oregon Coast (OC) steelhead trout, and Klamath Mountain Province (KMP) steelhead trout; and (3) formal conference for chinook salmon, chum salmon, and coastal cutthroat trout, candidates for listing under the ESA.

In addition to compliance with ESA regulations, this Opinion has been prepared in accordance with direction established in the May 31, 1995, interagency agreement for Streamlining Consultation Procedures Under Section 7 of the Endangered Species Act. An interagency consultation process for implementing the streamlining agreement was jointly adopted by the USFS, BLM, USDI Fish and Wildlife Service (FWS), and the NMFS on August 29, 1995, and revised and updated on February 26, 1997. In response to the direction to ensure early and frequent interagency coordination throughout the consultation process, an interagency team with biologists from the NMFS, USFS and BLM was formed. Team meetings were held on June 20, July 3, 19 and 30, August 1, November 6, 13, and 18, and December 4, 1996, to agree on the format and content of the BA and on December 18, 1996, to review the first draft of the BA.

The objective of this Opinion is to determine whether the proposed actions associated with the ten USFS and BLM administrative units described below are likely to jeopardize the continued existence of UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, or coastal cutthroat trout. While the Opinion evaluates effects of the proposed actions on Pacific salmonid habitat, critical habitat has not been proposed or designated for these species, and therefore conclusions regarding destruction or adverse modification of critical habitat are not included in this Opinion.

## **II. Proposed Action**

The USFS and BLM requested conference and consultation on three categories of actions: (1) continued implementation of five USFS NF Land and Resource Management Plans (LRMPs) and five BLM District Resource Management Plans (RMPs) for the

coastal Oregon action area; (2) all Federal actions within the ten affected administrative units determined "not likely to adversely affect" (NLAA) listed, proposed, or candidate salmonid species, based on the procedures described in "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996); and (3) some Federal actions within the ten affected administrative units determined "likely to adversely affect" (LAA) listed, proposed or candidate salmonid species, based on the process described in (2) above, that have either long-term beneficial effects or minor adverse effects.

#### Continued LRMP and RMP Implementation

The subject USFS and BLM administrative units propose to continue implementation of five USFS NF LRMPs and five BLM District RMPs. The BA describes the generalized effects of these LRMPs and RMPs on eight listed, proposed, and candidate Pacific salmonid species in the coastal Oregon area pursuant to the ESA. The ten administrative units are:

<u>USFS NFs</u>	<u>BLM Districts</u>
Rogue River	Coos Bay
Siskiyou	Eugene
Siuslaw	Medford
Umpqua	Roseburg
Winema	Salem

For the purposes of this consultation, the action area includes those portions of the ten administrative units within the five ESUs described above, additional Federal lands upstream of the ESUs in the Umpqua River basin and the Rogue River basin, and river reaches downstream of the administrative unit boundaries that may be affected by Federal land management activities.

Based on our review of the subject LRMPs and RMPs, the NMFS observes that these plans establish broad management direction in two general areas. First, LRMP and RMP management direction is established through goals, objectives, desired future conditions, and/or standards and guidelines. Standards and guidelines are mandatory and must be applied at the project scale, unless explicitly exempted. Standards and guidelines provide the sideboards for reaching the broad goals, objectives, and desired future conditions established in the LRMPs and RMPs. Second, LRMPs and RMPs establish goals

and objectives regarding where, when, and how goods and services will be produced. This second area of management direction includes land allocations and projections of the timing and level of goods and services and other forest outputs that may be produced. As described in the BA, each LRMP and RMP addresses a wide array of management direction; e.g., roads management, timber management, minerals management, fish and wildlife management, grazing management, recreation management, monitoring etc.

While each of the ten LRMPs and RMPs are unique, all have either been amended by or fully incorporate the management goals and objectives, land allocations, and standards and guidelines of the Northwest Forest Plan *Record of Decision* (NFP ROD) (USDA-FS and USDI-BLM 1994). A primary component of the NFP is the Aquatic Conservation Strategy (ACS). The ACS was designed to protect salmon and steelhead habitat on Federal lands managed by the USFS and BLM by maintaining and restoring ecosystem health at watershed and landscape scales. To accomplish the stated objectives (Table 1) the ACS contains four components: riparian reserves, key watersheds, watershed analysis, and watershed restoration, each with specific standards and guidelines. Each component is expected to play an important role in improving the health of the region's aquatic ecosystems. The specific benefits of these four components are described in section V. of this Opinion and in Attachment 1.

Table 1. Northwest Forest Plan Aquatic Conservation Strategy Objectives (USDA, USDI 1994).

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.
2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.
3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.
4. Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.
5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.
9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

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### NLAA Actions

In addition to continued implementation of five LRMPs and five RMPs, the USFS and BLM requested conference and consultation on all Federal actions within the affected administrative units determined NLAA listed, proposed, and candidate Pacific salmonid species, based on the evaluation procedures described in NMFS (1996). The procedures established in NMFS (1996) are used to determine the effects of proposed actions relative to the environmental baseline at project and watershed scales, using criteria based on the species' biological requirements and the NFP ACS objectives. The procedures are also used to determine whether individual or groups of actions are LAA listed, proposed, and candidate salmonid species.

The procedures established in NMFS (1996) are generally applied through the interagency consultation streamlining process referenced above. The consultation streamlining process encourages early interagency coordination during project development and BA preparation and establishes time lines for completion of consultation. The process was developed to improve the efficiency and effectiveness of consultations. Accordingly, it requires the development and analysis of projects during interagency "Level 1" team meetings and timely resolution of disagreements via elevation to other hierarchical interagency teams (i.e., Level 2).

### LAA Actions

The USFS and BLM requested conference and consultation on some Federal actions determined "likely to adversely affect" (LAA) listed, proposed, or candidate salmonid species, based on the evaluation procedures described in NMFS (1996), that have either long-term beneficial effects or minor adverse effects.

The BA describes three general categories of LAA actions that are expected to result in long-term benefits to listed, proposed, or candidate salmonid species; i.e., instream fish habitat enhancement and restoration projects, culvert replacement upgrades, and activities to decommission existing roads. The effects of these specific programmatic actions are addressed in this Opinion.

In addition to the three categories of beneficial actions, the BA correctly states that other types of programmatic actions can be expected to cause only minor adverse effects to



Pacific salmonids. The BA does not specifically identify such actions or evaluate their effects. The NMFS acknowledges that Level 1 teams may identify many different types of programmatic actions that are likely to have minor adverse effects to salmonid habitat despite being fully consistent with LRMP and RMP management direction, including ACS objectives. It is not practical to list all such programmatic activities here or to try and evaluate their effects. This is best left to the Level 1 teams, applying the NMFS (1996) evaluation procedures through the streamlining consultation process.

For the purposes of this Opinion, the NMFS has evaluated the effects of four categories of non-beneficial LAA programmatic actions; i.e., road construction, livestock grazing, mining, and rock quarries in riparian reserves. As described in this Opinion, individual actions within these programs can be implemented in a manner that does not appreciably reduce the likelihood of survival or recovery of listed, proposed or candidate salmonid species. Because these types of projects may still result in more than a negligible likelihood of incidental take, even when designed and implemented in accordance with all relevant LRMP and RMP direction, NMFS has developed a standardized set of reasonable and prudent measures and associated terms and conditions to minimize the likelihood of incidental take for each of these categories of actions (see sections X.C. and X.D.).

While this Opinion does not authorize incidental take from any specific project within these four programs, the standardized terms and conditions in the incidental take statement are expected to further streamline the formal consultation process for future proposed projects. Once individual or groups of proposed actions have been reviewed by Level 1 teams to ensure they are both consistent with the ACS objectives and incorporate the standardized terms and conditions, NMFS can tier the actions to this Opinion to conclude the formal consultation process, thus precluding the need for additional biological opinions.

This Opinion does not address certain categories of non-beneficial LAA actions that are expected to need subsequent

formal consultation on an individual project or programmatic level. For example, in the case of programmatic timber harvest actions, the NMFS is unable at this time to develop a standardized set of terms and conditions that would apply to all potential timber sale projects. This Opinion does, however, include conservation recommendations that address programmatic actions such as timber harvest, with the goal of streamlining future conferences and consultations.

### **III. Biological Information and Critical Habitat**

The listing status and biological information for UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, and chum salmon are described in Attachment 1. Critical habitat has not yet been designated or proposed for any of these species.

### **IV. Evaluating Proposed Actions**

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA and defined by its implementing regulations (50 CFR § 402). The NMFS discusses the analysis necessary for application of these standards in the particular contexts of the Pacific salmonids in Attachment 2. This analysis involves the following steps: (A) define the biological requirements of the species; (B) evaluate the environmental baseline relative to the species' current status; (C) determine the effects of the proposed or continuing action on the species; (D) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the environmental baseline and any cumulative effects, and considering measures for survival and recovery specific to other life stages; and (E) identify reasonable and prudent alternatives to a proposed or continuing action that is likely to jeopardize the continued existence of the species.

#### **A. Biological Requirements**

The first step in the method the NMFS uses in applying the ESA standards of Section 7(a)(2) to Pacific salmonids is to define the species' biological requirements that are most relevant to each consultation. The NMFS finds that these biological requirements are best expressed in terms of environmental

factors that define properly functioning freshwater aquatic habitat necessary for the survival and recovery of UR cutthroat trout, OC and SONC coho salmon, KMP and OC steelhead trout, and chum salmon. Individual environmental factors include water quality, habitat access, physical habitat elements, river channel condition, and hydrology. Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are also necessary for the survival and recovery of these species.

Aquatic habitat conditions necessary for survival and recovery of chinook salmon and coastal cutthroat trout are similar to those of UR cutthroat trout, OC and SONC coho salmon, KMP and OC steelhead trout, and chum salmon. Actions are therefore assumed to have similar effects on chinook salmon and coastal cutthroat trout, where present, as on UR cutthroat trout, OC and SONC coho salmon, KMP and OC steelhead trout, and chum salmon. The biological requirements for six of the eight Pacific salmonid species addressed in this Opinion are summarized in Attachment 1.

## **B. Environmental Baseline**

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem (NMFS and USFWS 1996). The environmental baseline for the action area covered by this Opinion includes: those portions of the Rogue River, Siskiyou, Siuslaw, Umpqua, and Winema NFs and the Coos Bay, Eugene, Medford, Roseburg, and Salem BLM Districts within the five ESUs described above; additional Federal lands upstream of the ESUs in the Umpqua River basin and the Rogue River basin; and river reaches downstream of the administrative unit boundaries that may be affected by Federal land management activities.

The environmental baseline for the action area has generally been described in various documents. In general, land use practices have reduced salmonid production in Oregon by decreasing habitat diversity and complexity, and increasing the frequency and magnitude of natural events such as flooding and drought (Bottom et al. 1985). The abundance of large, deep pools on private coastal lands in Oregon has decreased by as much as 80% due to sedimentation and loss of pool-forming structures such as boulders and large wood (FEMAT 1993).

The report of the Forest Ecosystem Management Assessment Team (FEMAT 1993) provides a regional assessment of aquatic ecosystems within the range of the northern spotted owl (including the range of UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout), particularly with regard to land management actions. Chapter V of FEMAT (1993) focuses on current aquatic habitat conditions and the effects of degraded habitat on fish populations. Page V-2 notes that "[a]quatic ecosystems in the range of the northern spotted owl exhibit signs of degradation and ecological stress." This habitat degradation and loss includes decreases in the quantity and quality of habitat and the fragmentation of habitat into isolated patches. Human activities that have contributed to these changes include agriculture, timber harvest and associated activities, road construction, livestock grazing, water withdrawal and diversion, and dams. Within the range of the northern spotted owl, timber harvest and associated activities (including road building) are among the most significant management actions that affect fish habitat on Federal land.

A USDA-FS (1995) report identifies a close relationship between various fish habitat parameters and the land management history of streams in the Umpqua NF. Beginning in the mid-1950s, summer water temperatures and the frequency of winter flooding increased in the Umpqua River basin due in part to removal of riparian cover and to other forestry practices in the basin (Johnson *et al.* 1994). Brown *et al.* (1971) found substantial increases in stream temperatures by measuring areas above and below clearcuts. The fact that silviculture is the predominant land use in the basin (approximately 70% of the area) and more than 80 of the basin's river reaches are designated as water quality limited (ODEQ 1995), strongly suggests that silviculture and related activities have degraded water quality and likely contributed to the decline of UR cutthroat trout (August 9, 1996, 61 FR 41519). In recent years, the riparian forest canopy has begun to recover in the North Umpqua River watershed, but maximum water temperatures are still higher than those needed by cutthroat trout and other salmonids (Johnson *et al.* 1994).

The USFS and BLM submitted BAs and initiated consultation on ongoing and proposed actions (through first quarter of fiscal year 1997) in the Umpqua NF which "may affect" UR cutthroat

trout (USDA-FS 1996a, 1996c, 1996d; USDI-BLM 1996c, 1996d, 1996e). They also submitted BAs and requested conferencing on ongoing (through May 31, 1998) and proposed actions that may affect OC coho salmon, OC steelhead, and chum salmon within the Oregon Coast Range Province (USDA-FS 1996b; USDI-BLM 1996a, 1996b). Each of these BAs included "Checklist[s] for documenting environmental baseline and effects of the action" (Checklist) that characterized environmental baseline conditions and the predicted effects of the actions on those baseline conditions. Tables 2 and 3 provide summaries of the environmental baselines within the Umpqua River Basin and Oregon Coast Range Province, respectively, based on Checklists for each action contained in the BAs. Overall, the environmental baseline condition of the Umpqua River Basin is rated as "at risk" to "not properly functioning", whereas the environmental baseline condition of the Oregon Coast Range Province is predominantly rated as "not properly functioning."

The environmental baseline conditions summarized in Tables 2 and 3 generally include the effects of timber sales harvested pursuant to section 2001(k)(1) of the Rescissions Act (P.L. 104-19). This law exempted a number of timber sales in the action area from the requirements of applicable environmental laws and management plan requirements. Some of the timber sales subject to this law were subsequently canceled, some had replacement volume provided consistent with applicable environmental laws and management plan requirements, while others were modified through mutual agreement with purchasers to incorporate environmental protection measures. The Regional Ecosystem Office (REO) analyzed the effects of those Rescission Act timber sales found to be inconsistent with NFP ROD management direction and ESA requirements (Knowles, in preparation). It concluded that, in spite of the Rescission Act timber sale effects, the ACS still represented a valid conservation strategy for aquatic ecosystems. The REO found that the ACS was intact at the regional scale and that no amendments to NFP standards and guidelines were necessary to accommodate the effects of Rescission Act timber sales. However, it recommended that watershed analyses be updated to reflect watershed-scale effects of these sales. The REO also indicated that basin-scale assessments may be necessary, e.g., in the South Umpqua River basin, to support ESA consultations for future timber sale and watershed restoration planning.

In summary, the decline of UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout production in the action area has resulted from a variety of activities including hydropower development, harvest, artificial propagation, timber management (and associated road construction), mining, irrigation diversions, livestock grazing, periods of drought, poor ocean conditions, and marine mammal predation. The NMFS has determined that the biological requirements for freshwater life stages of UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout are currently not being met under the environmental baseline of the action area. Their status is such that there must be a significant improvement in the environmental conditions of their habitat over those currently available under the environmental baseline (see Attachment 1, Species Status Under the Environmental Baseline). Any further degradation of these conditions is expected to have a significant impact due to the level of risk that listed, proposed, and candidate salmonids presently face under the environmental baseline.

Table 2. Environmental baseline summary for the Umpqua River Basin. Information source is the "Checklist for documenting environmental baseline and effects of the action" (Checklist), completed for each action contained in the BAS (USDA-FS 1996a, 1996c, 1996d; USDI-BLM 1996c, 1996d, 1996e). Each Checklist is made up of approximately 17 habitat parameters.

<sup>1</sup> The dominant functional level (either properly functioning, at risk, or not properly functioning) is that in which the majority of the approximately 17 habitat parameters are categorized in the Checklist completed for each action in the BAs. Both functional levels are counted if there is a tie.

Table 3. Environmental baseline summary for the Oregon Coast Range Province. Information source is the "Checklist for documenting environmental baseline and effects of the action" (Checklist), completed for each action contained in the BAs (USDA-FS 1996b; USDI-BLM 1996a,b). Each Checklist is made up of approximately 17 habitat parameters.

1 The dominant functional level (either properly functioning, at risk, or not properly functioning) is that in which the majority of the approximately 17 habitat parameters are categorized in the Checklist completed for each action in the BAS. Both functional levels are counted if there is a tie.

[illegible]



## **V. Analysis of Effects**

### **A. Determination Standard for Effects of Proposed Actions**

The LRMPs and RMPs present a special case for analyzing the effects of actions because in order to carry out activities on lands covered by the plans, the USFS and BLM have to conduct additional layers of environmental review to meet NFMA, NEPA, and ESA requirements. Even though LRMPs and RMPs set important parameters for the authorization of specific projects, with some exceptions, LRMPs and RMPs typically do not provide the final authorization for project implementation. Therefore, the analysis of effects in this Opinion considers both the overall long-term effects of implementing LRMP and RMP management direction and potential on-the-ground effects of site-specific activities that may be taken consistent with the plans. Although project-scale actions will still be subject to section 7 consultation, the NMFS finds that it is appropriate to consider the efficacy of LRMP/RMP direction to minimize and avoid adverse effects at the earliest project planning level.

Consideration of the needs of Pacific salmonids is important at both levels of administrative unit decision making (i.e., management plan and project levels). While LRMPs and RMPs set goals and objectives, land allocations, and standards and guidelines that regulate the production of goods and services, consultation at the individual program or project scale is enhanced when there has been an opportunity to consider the full range of effects at the species (ESU) scale under an ecosystem-based strategy applied at the LRMP/RMP scale.

### **B. Effects From Continued Implementation of LRMP and RMP Management Direction**

As discussed in section IV. of this Opinion, the application of pre-NFP LRMP and RMP land allocations and standards and guidelines, in connection with site-specific actions, were inadequate to prevent the decline of UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout. Pre-NFP management of the subject administrative units contributed to further degradation of habitat and continued decline in egg-to-smolt survival. For example, past timber harvest, road construction, and mining practices in the coastal Oregon area were responsible for considerable localized degradation of

Pacific salmonid habitat. Generally, adverse effects to listed salmonids and their habitat result from the aggregation of impacts which occur at the site-specific level. The accumulation of effects at the landscape level from numerous actions, if not fully arrested at the project scale, would reduce the likelihood of both survival and recovery of the species.

## **1. Aquatic Conservation Strategy Direction**

As previously described, each of the ten LRMPs and RMPs under consultation and conference have either been amended by or have been subsequently revised to incorporate NFP land allocations and standards and guidelines that collectively comprise a regional-scale ACS. While the ACS was developed prior to the final or proposed listing of Pacific salmonid species in the Oregon coast region, NMFS participated in the ACS development with the goal of protecting existing freshwater salmonid habitats and restoring currently degraded habitats on Federal lands. In the final rule listing UR cutthroat trout as endangered (August 6, 1996, FR 61 41514), NMFS acknowledged that the NFP amendments to the LRMPs and RMPs were "intended to ultimately reverse the trend of aquatic ecosystem degradation and contribute toward recovery of fish habitat." However, the NMFS noted that the results of the NFP ACS have "yet to be demonstrated." This because the ACS is based on natural ecosystem recovery and disturbance processes and will take many years for results to be realized. Management of the administrative units under the NFP ACS for the benefit of listed salmonids, with landscape-scale strategies emphasizing the protection and restoration of aquatic and riparian habitats, is expected to allow for the survival and recovery of affected Pacific salmonid species.

In recognition of over 300 "at-risk" Pacific salmonid stocks within the NFP area, the ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems on public lands. The ACS strives to maintain and restore ecosystem health at watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources and to restore currently degraded habitats. The approach seeks to prevent further degradation and to restore habitat over broad landscapes.

The ACS contains four cornerstone components - riparian reserves, key watersheds, watershed analysis, and watershed

restoration - that encompass both special land allocations and associated standards and guidelines. Each component is expected to play an important role in improving the health of the region's aquatic ecosystems by ensuring that all management actions are consistent with nine specific ACS objectives (Table 1).

Riparian Reserves: Riparian reserves are an essential reserve land allocation that provide protection buffers adjacent to all rivers, streams, lakes, ponds, and wetlands. Riparian reserves ensure that the critical interface between upland management actions and instream salmonid habitat, the riparian area, is managed to both protect existing aquatic habitat values and to allow natural ecosystem disturbance processes to sustain natural habitat recovery over time.

The LRMPs and RMPs establish interim widths for all riparian reserves, based on the type of waterbody to be protected. For example, fish bearing perennial streams receive the maximum reserve width, while widths associated with intermittent streams and small wetlands are narrower. The interim reserve widths for each type of waterbody were designed by aquatic scientists to optimize the cumulative effectiveness of the relevant riparian functions (e.g., shading, root strength, large wood recruitment, organic matter input, water quality, microclimate, etc.). In addition to the aquatic protection afforded by the actual width of riparian reserves, further assurance of achieving ACS objectives is provided through the application of specific standards and guidelines that preclude or regulate management within riparian reserves; e.g. timber management, road construction and maintenance, grazing, recreation, minerals management, fire/fuels management, research, and restoration activities. Prescribed (initial) riparian reserve boundary widths remain in effect until they are modified following watershed analysis, site analysis, and NEPA documentation (USDA-FS and USDI-BLM 1994).

Key Watersheds: In addition to the network of refugia provided by riparian reserves, each LRMP and RMP also includes a network of key watersheds. Key watersheds were intended to be managed to provide interconnected strongholds of high water quality and source habitat for Pacific salmonids, well distributed across the landscape. For strategically located key watersheds where no high quality

habitats presently exist, this designation was intended to focus habitat restoration efforts to augment natural recovery processes and hasten the development of high quality habitat.

The NFP designates three categories of watersheds within each of the LRMPs and RMPs:

- Tier 1 Key Watersheds: those to be managed for at-risk anadromous salmonids, bull trout, and resident fish.
- Tier 2 Key Watersheds: those where high-water quality is important.
- Non-Key Watersheds: all other watersheds.

The *ROD* prescribes standards and guidelines for key watersheds that are intended to promote their fish refugia and water quality management objectives; e.g., avoid new roads within inventoried roadless areas and reduce road miles outside of roadless areas (USDA-FS and USDI-BLM 1994).

Watershed Analysis: Watershed analysis is a new level of analysis now required by the LRMPs and RMPs. It is a systematic procedure designed to bridge the gap between analysis at the LRMP and RMP scale and the project scale by characterizing the aquatic, riparian, and terrestrial features and management issues within a watershed. The NFP *ROD* discusses watershed analysis and its utility for establishing existing and potential watershed conditions as they relate to aquatic habitat:

Watershed analysis has a critical role in providing for aquatic and riparian habitat protection. In planning for ecosystem management and establishing Riparian Reserves to protect and restore riparian and aquatic habitat, the overall watershed condition and the array of processes operating there need to be considered.... (NFP *ROD*, pages B-20, 21).

Managers are expected to use information gathered during watershed analyses to make more informed management decisions that better reflect the habitat needs of Pacific salmonids and other ecosystem components; e.g., refinement of riparian reserve boundaries, prescription of land management activities including watershed restoration, and development of monitoring programs. Standards and guidelines for watershed analysis are established in the *ROD*. In addition, the NMFS participated in the development of the interagency document *Ecosystem Analysis at the*

*Watershed Scale: Federal Guide for Watershed Analysis* (RIEC 1995) which establishes a standardized framework and approach for conducting watershed analyses within the subject administrative units.

The BAs describe generally the effect of LRMP and RMP direction to perform watershed analysis. The total acres of watershed analyses completed during fiscal years 1994-96 within the range of each ESU by each administrative unit are listed in Table 4 of the BA. For example, watershed analyses have been completed on approximately 44% of the Federally-administered area encompassed by the UR cutthroat trout ESU. Watershed analyses have been completed on 45% of the Federally-administered area within the OC coho and OC steelhead ESUs, and on 61.5% of the Federally-administered area within range of the SONC coho and KMP steelhead ESUs.

Watershed Restoration: Despite the establishment of refugia for Pacific salmonids in the form of riparian reserves and key watersheds, a strong program of watershed restoration is an essential part of each LRMP and RMP to restore currently degraded habitat conditions. As described in section IV.B. of this Opinion, existing ecological conditions in many reserve allocations are severely degraded as a result of past land management activities that predated the NFP. While the ACS relies on natural ecosystem disturbance processes to recover aquatic habitats over time, certain strategic habitats, e.g., key watersheds that currently lack high quality salmonid habitat, need active restoration efforts to hasten natural recovery and provide immediate benefits for listed, proposed, and candidate salmonid species.

The *ROD* (USDA-FS and USDI-BLM 1994) recognizes that habitat restoration efforts are not intended to replace natural recovery processes or to mitigate for additional adverse effects of new management actions. Instead, habitat restoration projects are intended to provide short-term ecological benefits until the results of natural recovery processes are realized. The LRMPs and RMPs therefore include standards and guidelines for watershed restoration that embody this principle. For example, the most important restoration priorities are generally the control of road-related runoff and sediment production, restoration of watershed hydrologic functions, and restoration of riparian

reserve functions. Restoration programs will initially focus on road improvements and vegetation treatments in riparian reserves to accomplish these priorities. Instream restoration is inherently short-term and must be accompanied by upslope and riparian restoration to achieve long-term watershed restoration.

The BAs generally describe the effect of restoration direction in the LRMPs and RMPs. Watershed restoration projects completed during fiscal years 1994-96 within the range of each ESU by each administrative unit are listed in Tables 1-3 of the BA. For example, restoration activities to date on Federal lands have included culvert replacements, road bed stabilization, road surfacing, road decommissioning, installation of instream structures, and revegetation of riparian and upland areas. Within the range of UR cutthroat trout, 22 culverts have been replaced or improved for fish passage; 53 within the OC coho and OC steelhead ESUs area; and 14 within the area encompassed by the SONC coho and KMP steelhead ESUs. In addition, road decommissioning has totaled 35.2 miles within the range of UR cutthroat trout, 135.95 miles within the area encompassed by the OC coho and OC steelhead ESUs, and 232.4 miles within the SONC coho and KMP steelhead ESUs area.

## **2. Land Allocations and Standards and Guidelines**

There are many potential adverse effects to Pacific salmonid freshwater habitat elements that could result from site-specific implementation of individual programs and projects, including timber harvest, road construction and decommissioning, instream habitat enhancement structures, grazing, mining, recreation, etc. A comprehensive review of the expected adverse effects generally associated with these types of actions on aquatic ecosystems, including Pacific salmonid habitat, can be found in chapter V, Aquatic Ecosystem Assessment, of the Forest Ecosystem Management Assessment Team (FEMAT 1993) report.

It is generally not practical to provide a detailed review of all potential effects of all individual actions, as such an analysis would entail considerable conjecture about the specifics of hypothetical project design, timing and configuration. The effects of individual proposed actions on listed, proposed, and candidate salmonid species addressed in this Opinion are generally predictable, however, because, by

definition, they must be consistent with the ACS objectives. Compliance with these ACS objectives is not left to chance or to the discretion of individual land managers. As described above, a system of land allocations and standards and guidelines are included in each LRMP and RMP to focus the location and design of actions towards meeting ecosystem management objectives.

Land Allocations Under the current LRMPs and RMPs, as amended by the NFP, the Federal land area where certain land management practices can now occur has been substantially reduced by the establishment of various reserve land allocations. Key watersheds and other reserve allocations are very important for fish habitat protection and refugia (USDA-FS and USDI-BLM 1994). A system of refugia (designated areas providing high quality habitat) is essential for maintaining and recovering habitat for at-risk fish populations, particularly in the short term (FEMAT 1993). Areas currently in good condition serve as anchors for the potential recovery of depressed populations, while those of lower quality should have a high potential for restoration and will become future sources of good habitat.

In addition to the riparian reserve and key watershed allocations described above, additional reserve allocations have also been established where land management actions are severely restricted, such as Congressionally-reserved areas (CRAs) and late-successional reserves (LSRs). The network of LSRs, for example, while established to provide habitat for terrestrial species associated with late-successional forests, also provide substantial benefits to Pacific salmonid in the form of protected habitat refugia.

Federal lands within the five ESUs are composed primarily of reserve land allocations (See Tables 1-3 of the BA). The key watershed area of the ESUs range from 24 to 48%, and are composed only of Tier 1 key watersheds. The total refugia area, consisting of key watersheds plus the CRAs and LSRs of non-key watersheds, ranges from 59 to 66% of the Federal land within the ESUs. Streams in these land allocations should serve as anchors or core areas of high quality habitat and population centers for recolonization during the recovery of degraded areas. This is particularly important for locally-distributed fish species and races such as the cutthroat trout.

As a result of the various reserve allocations included in the LRMPs and RMPs, scheduled timber harvest is now limited to a relatively small percentage of the overall landscape within lands designated as "matrix" and Adaptive Management Area (AMA). The combined matrix and AMA area of the UR cutthroat trout, OC coho salmon or OC steelhead, and SONC coho salmon or KMP steelhead ESUs is 20%, 17%, and 14%, respectively. A relatively large percentage (17-27%) of this land area is located in tier 1 key watersheds, which could further reduce timber harvest since key watersheds have an aquatic conservation emphasis and are to be managed as refugia for at-risk fish species.

Standards and Guidelines Standards and guidelines are another important part of the NFP ACS, as they were developed specifically to mitigate adverse effects of management actions by protecting existing aquatic habitats and restoring currently degraded habitats. These standards and guidelines are described in the NFP ROD (USDA-FS and USDI BLM, 1994). For example, there are many standards and guidelines for timber harvest and related silviculture actions that directly or indirectly benefit Pacific salmonids; e.g., ROD pages C-7, C-11 through 16, C-19 through 28, C-30 through 32, and C-39 through 48 of the ROD. Other standards and guidelines that benefit Pacific salmonids include those for road management, fire and fuels management, general riparian habitat management, watershed and habitat restoration, fish and wildlife habitat management, minerals management, recreation management, grazing management, and watershed analysis.

The efficacy of standards and guidelines for achieving the desired benefits of fish habitat protection and restoration are described in the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (FSEIS) (USDA-FS and USDI-BLM (lead agencies) 1994); e.g., chapters 3&4, pages 51 through 82. The NMFS served as a cooperating agency in the preparation of this FSEIS and concurs with the referenced analysis of standards and guidelines effects.

Decision Maker Discretion The land allocations and standards and guidelines described above were designed to focus the review of proposed actions to determine compatibility with the ACS objectives. The NMFS recognizes that agency decision



makers retain enough discretion when implementing management direction in the LRMPs and RMPs that application of the standards and guidelines alone may not always guarantee that all management decisions will be fully consistent with ACS objectives. However, the review of proposed actions by Level 1 teams pursuant to the interagency ESA consultation streamlining agreement provides an added measure of assurance that projects will be properly designed to fully meet ACS objectives. Application of the evaluation procedures in NMFS (1996) by the Level 1 teams further assures that the biological requirements of Pacific salmonid species will be met during the project design process.

### **3. Monitoring Direction**

All ten administrative units are expected to participate in regional implementation and effectiveness monitoring efforts. Implementation monitoring should indicate whether individual and groups of actions are implemented in a manner consistent with LRMP and RMP direction. Effectiveness monitoring will address assumptions made by the FEMAT; e.g., whether the changes to LRMPs and RMPs effected by the NFP are effective in achieving the ACS objectives, including improved aquatic habitat conditions.

Fiscal year 1996 was the pilot year for implementation monitoring (Alverts et al. 1996 draft). The pilot project focused on timber sale reviews conducted by interagency, interdisciplinary, and intergovernmental teams. The diversity of ideas, backgrounds, disciplines, and public involvement in the review process resulted in a vigorous review of each sale. Initial results indicate that, with a few minor exceptions, the USFS and BLM are consistently implementing the standards and guidelines of the NFP ROD. For fiscal year 1997, timber sales, roads, and restoration projects will be the priority topics for implementation monitoring.

A regional plan for effectiveness monitoring of aquatic and riparian resources is currently under development by the regional Research and Monitoring Committee, a technical subcommittee of the Interagency Advisory Committee. Current plans call for a pilot test of the effectiveness monitoring plan in fiscal year 1997 or 1998. Effectiveness monitoring results for the entire action area, however, are not expected to be available for two or more years.

#### **4. Expected Long-Term Conservation Benefits from LRMP and RMP Management Direction**

Implementation of the LRMPs and RMPs, consistent with the standards and guidelines and ACS objectives of the NFP, is expected to result in improved habitat conditions for UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout (over various time scales) within the ownership of the ten administrative units. This, in turn, is expected to provide for increased survival of various life stages of these fish and an increased probability of restoring and maintaining viable populations (Attachment 1).

During development of the NFP, the FEMAT assessed management alternatives to determine the probability of ensuring the viability of various plant and animal species on Federal lands within the range of the Northern spotted owl. To accomplish this, assessment panels comprised of experts were convened to elicit high quality judgments about expected effects of the alternatives on these species. The panelists assessed the likelihood that each alternative would provide sufficient habitat on Federal lands to provide for various distributions of species populations over the 100 year assessment period (USDA-FS and USDI-BLM (lead agencies) 1994).

The assessment for the preferred management alternative in the FSEIS, as adjusted by the NFP *ROD*, concluded that there would be an 80% or greater likelihood of providing sufficient aquatic habitat to support stable, well-distributed populations of the races/species/groups evaluated on Federal lands (USDA-FS and USDI-BLM (lead agencies) 1994)<sup>2</sup>. The salmonids evaluated included coastal cutthroat trout, coho salmon, fall chinook salmon, spring chinook salmon/summer steelhead, and winter steelhead. Chum salmon is the only species addressed in this Opinion whose likelihood of survival was not directly assessed in the FSEIS. The reason this

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<sup>2</sup> The referenced viability assessments do not apply to the entire ESUs of salmonid species considered in this Opinion; they apply only to Federal lands within the ESUs. The expert viability panelists were unable to draw conclusions regarding the viability of these species on non-federal lands. This is because little information was available regarding the current quality of fish habitats on non-federal lands and because the panelists were unable predict with certainty how non-Federal lands would be managed throughout the assessment period.

species was not considered was its limited distribution on Federal lands within the range of the northern spotted owl. Chum salmon, like other salmonid species, require unblocked stream reaches for migration and clean gravels to reproduce successfully. They do not have an extended freshwater rearing life history phase like the other salmonids. Since the salmonid fish groups evaluated serve as reasonable indicators of aquatic ecosystem health, it is likely that chum salmon spawning and migration habitats on Federal land would be similarly affected by the implementation of the NFP components embodied in each of the ten LRMPs and RMPs.

Although the analysis of aquatic habitat prepared for the FSEIS was not quantitative, NMFS believes that this assessment represents the best available (and currently possible) analysis of the expected effects of implementation of the LRMPs and RMPs (consistent with the NFP) on UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout habitat on Federal lands in the action area.

### **C. Effects of Individual and Groups of Actions**

Individual and groups of actions (programs or projects) implemented in accordance with management direction in the LRMPs and RMPs are expected to affect UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout in a variety of ways. Some may result in adverse effects to salmonid habitat, while others are expected to maintain or restore habitat conditions. Because all actions will be designed and mitigated in accordance with the ACS objectives, land allocations, and standards and guidelines, any associated adverse effects (e.g., increased habitat sedimentation) are expected to be generally minor in magnitude and short-lived in duration. Chapter V of FEMAT (1993) discusses generally the potential adverse effects of these actions on fish habitat and populations.

#### **1. NLAA Actions**

The NMFS is unable to evaluate the effects of all Federal actions within the ten affected administrative units determined NLAA, based on the evaluation procedures in NMFS (1996), as requested. These actions are not explicitly described in the BA, nor is the NMFS able to predict all

potential proposed actions that might be determined NLAA listed, proposed, or candidate Pacific salmonid species in the future.

The NMFS fully supports the evaluation procedures established in NMFS (1996), as applied through the interagency consultation streamlining process, to fulfill ESA section 7 informal consultation requirements for actions determined NLAA listed species. However, for the purposes of this Opinion, the NMFS does not consider application of these evaluation procedures and consultation processes to be a discrete action subject to consultation.

Instead, the NMFS considers application of the described evaluation procedures and consultation processes important in two different contexts within this Opinion. First, they are essential to ensure that the management direction of the LRMPs and RMPs, particularly aquatic ecosystem conservation measures, is fully implemented in a manner consistent with the action agencies' conservation responsibilities pursuant to section 7(a)(2) of the ESA. Second, NMFS considers the process an effective monitoring tool to ensure that measures to further minimize the likelihood of incidental take are developed and implemented.

## **2. LAA Actions Providing Long-Term Benefits**

The BA identified three general categories of programmatic actions that provide long-term benefits to salmonid habitat: (1) instream fish habitat enhancement and restoration projects; (2) culvert replacement upgrades; and (3) actions related to the decommissioning of existing roads.

### Instream Fish Habitat Enhancement and Restoration Projects

Habitat restoration efforts are not intended to replace natural recovery processes or to mitigate for additional adverse effects of new management actions (USDA-FS and USDI-BLM 1994). Instead, habitat restoration projects are intended to provide short-term ecological benefits until the results of natural recovery processes are realized. Accordingly, instream restoration projects must be accompanied by riparian and upslope improvements if restoration of the watershed is to be successful.

The benefits of instream habitat enhancement structures are generally short-term in duration, although they may be appropriate for limited use to augment longer-term riparian rehabilitation and sediment source reduction (Frissell and Nawa 1992, Reeves et al. 1991, FEMAT 1993, USDA-FS and USDI-BLM 1994). For example, the placement of rootwads and other large wood pieces within the stream channel may provide salmonid habitat structure and cover for a period of years until large conifers are restored in riparian reserves. The creation of off-channel rearing areas may provide overwintering habitat for coho salmon until road decommissioning, other restoration actions, and natural disturbance processes restore floodplain functions and channel complexity.

All instream construction activities inevitably result in disturbance of stream substrates and downstream sediment delivery. Depending on the proximity of project site disturbance to fish habitat, short-term fine sediment pulses from earthwork and related instream activities may adversely affect the survival of some fish life stages. Incidental take associated with these projects is possible from detrimental effects on aquatic habitat parameters including substrate quality, turbidity, and suspended sediment levels, all of which may directly affect the survival of various life history stages of these fish. Because of the potential for short-term adverse effects, such projects must be meticulously designed, timed, and implemented to minimize adverse effects to listed, proposed, and candidate salmonid species. The incidental take statement in this Opinion includes reasonable and prudent measures to minimize incidental take from these actions.

#### Culvert Replacement Upgrades

Improperly placed culverts can create barriers to upstream migration by fish. Inadequately sized culverts can restrict stream flows and can result in major contributions of sediment to streams if they become plugged or overflow.

Benefits realized from replacement or upgrading of culverts at stream crossings include restoration of fish, flood flow and bedload passage. Culverts should accommodate at least the 100-year flood, including associated bedload and debris (USDA-FS and USDI-BLM, 1994). Furniss et al. (1991) summarize other important considerations for culvert design and installation.

Earth moving activities related to culvert replacement can result in short-term fine sediment pulses to streams. The relative short-term effects of culvert replacement are generally considered to be minimal, however, compared to continuing long-term adverse effects caused by existing culverts that are improperly placed or sized. Projects must be carefully designed, timed, and implemented to minimize adverse effects to listed, proposed, and candidate salmonid species. The incidental take statement in this Opinion includes reasonable and prudent measures to minimize incidental take from these actions.

### Road Decommissioning

Road decommissioning is perhaps the most significant and beneficial action for the long-term maintenance and restoration of aquatic habitats (Furniss et al. 1991, FEMAT 1993). Road decommissioning includes a variety of measures associated with restoration of hydrologic functions and risk reduction by minimizing road-related sediment delivery to streams (e.g., culvert removal, decompaction of road surfaces (ripping), outsloping, waterbarring, fill removal, revegetating with native species, and roadway barricading exclude vehicular traffic).

Depending on the proximity of project site disturbance to downstream fish habitat, short-term fine sediment pulses from earthwork and related road decommissioning activities may adversely affect the survival of some fish life stages. Incidental take associated with these projects is possible from detrimental effects on aquatic habitat parameters including substrate quality, turbidity, and suspended sediment levels, all of which may directly affect the survival of various life history stages of these fish. Because of the potential for short-term adverse effects, such projects must be meticulously implemented to minimize adverse effects to listed, proposed and candidate salmonid species. The incidental take statement in this Opinion includes reasonable and prudent measures to minimize incidental take from these actions.

### **3. Non-beneficial LAA Actions**

The following general discussions of programmatic road construction, livestock grazing, mining, and rock quarry effects represent worst-case scenarios, and are not based on

full application of LRMP and RMP management direction to meet ACS objectives. As described in section II. of this Opinion, these programmatic actions can be implemented in a manner that does not appreciably reduce the likelihood of survival or recovery of listed, proposed, or candidate salmonid species. Because these types of projects may still result in more than a negligible likelihood of incidental take, even when designed and implemented in accordance with all relevant LRMP and RMP direction, NMFS has developed a standardized set of reasonable and prudent measures and associated terms and conditions to minimize the likelihood of incidental take for each of these categories of actions (see sections X.C. and X.D. below).

### Road construction

In general, roads have been a primary source of sediment impacts in developed watersheds (Everett et al. 1994; Rhodes et al. 1994; Wissmar et al. 1994). Furniss et al. (1991) state that:

Roads may have unavoidable harmful effects on streams, no matter how well they are located, designed or maintained.... Roads modify natural hillslope networks and accelerate erosion processes. These changes can alter physical processes in streams, leading to changes in stream flow regimes, sediment transport and storage, channel bank and bed configurations, substrate composition, and stability of slopes adjacent to streams. These changes can have significant biological consequences that affect virtually all components of stream ecosystems.

Megahan (1987) indicates that, without exception, road construction accelerates surface erosion rates compared to undisturbed conditions. According to this study, sedimentation increases greatly during and after road construction, and then decreases rapidly. However, surface erosion rates and sedimentation generally continue to exceed undisturbed conditions.

The relatively impermeable surfaces of roads cause surface runoff that bypasses longer, slower subsurface flow routes (Harr et al. 1975, 1979; Ziemer 1981, Wemple 1994). The longevity of changes in hydrologic processes resulting from forest roads is as permanent as the road. The resulting increase in the rate water passes through the watershed further exacerbates peak flow and base flow changes caused by other aspects of timber harvest (Jones and Grant 1996).

Incidental take associated with road construction actions is expected from detrimental effects on aquatic habitat parameters including substrate quality, turbidity, and suspended sediment levels, all of which may directly affect the life history of these fish. The incidental take statement in this Opinion includes reasonable and prudent measures to minimize incidental take from road construction actions.

### Livestock grazing

Potential effects of livestock grazing on salmonids and their habitat have been discussed by Platts (1991), Burton *et al.* (1993), and Clary and Webster (1989). Impacts of livestock grazing on stream habitat and fish populations can be separated into acute and chronic effects. Acute effects are those which contribute to the immediate loss of individual eggs and/or fish (trampling of redds, sedimentation, etc.) and loss of specific habitat features (undercut banks, spawning beds, etc.) or localized reductions in habitat quality (sedimentation, loss of riparian vegetation, etc.). Chronic effects are those which, over a period of time, result in widespread reductions in habitat quantity and/or quality or loss or reductions of entire fish populations.

Acute Effects. Acute effects to habitat include compacted stream substrates, collapsed undercut banks, destabilized streambanks and localized reduction or removal of herbaceous and woody vegetation along streambanks and within riparian areas (Platts 1991). Increased levels of sediment can result through the resuspension of material within existing stream channels as well as increased contributions of sediment from adjacent streambanks and riparian areas. Decreases in streambank stability correspond to increases in surface fine sediment and reduced emergence of salmon fry (Burton *et al.* 1993). Impacts to stream and riparian areas resulting from grazing are dependent on the intensity, duration, and timing of grazing activities (Platts 1989) as well as the capacity of a given watershed to assimilate imposed activities, and the pre-activity condition of the watershed (Odum 1981).

Vulnerability of salmonids to acute effects of grazing is greatest during early development stages. During early phases of their life cycle, fish have limited to no mobility, and large numbers of embryos or young are concentrated in small areas. Cattle entering spawning areas can trample, destroy or



dislodge embryos and early larvae. When cattle or horses are not fenced out of streams after adult salmonids construct redds, livestock may step on redds while crossing or drinking water from the streams. Because of increased pressure caused from livestock hooves, salmonid eggs buried in redds are more likely to be damaged than when humans step on redds. Humans wading on salmonid redds can considerably decrease egg-to-emergent fry survival (Roberts and White 1992). Embryo and larval mortality can also result from localized sedimentation of spawning beds (Bjornn and Reiser 1991). Accumulations of silt, if delivered in sufficient quantity, can fill interstitial spaces in streambed material, impeding water flow through gravels, reducing dissolved oxygen levels, and restricting removal of wastes from spawning areas. As embryo development progresses, vulnerability to direct mortality from acute effects decreases. However, when environmental and/or human imposed disturbances to habitat work synergistically to reduce habitat quality and availability, additional stress to adult fish brought about by the presence of cattle within stream areas may be sufficient to lead to pre-spawning mortality.

Grazing is proposed within some riparian reserves within the action area. Increased sediment levels resulting from cattle use can be expected to occur within and downstream from grazed areas. Impact distance is a function of channel slope, stream water level, and the sequence of habitat conditions downstream of the impact area.

Chronic Effects. Chronic effects of grazing result when upland and riparian areas are exposed to disturbance levels that exceed assimilative abilities of the watershed. Both direct and indirect fish mortality are possible, and the potential for mortality extends to all life cycle phases.

Although less extreme, increases in stream temperature and reduced allochthonous inputs following removal of riparian vegetation, increased sedimentation from instream, riparian and upland sources, and decreased instream, riparian and upland water storage capacity, work together to reduce the health and vigor of stream biotic communities (Armour et al. 1991, Platts 1991, Chaney et al. 1990). Increased sediment loads reduce primary production in streams. Reduced instream plant growth and woody and herbaceous riparian vegetation limits populations of terrestrial and aquatic insects, a

potential food source for salmonids. Persistent degraded conditions adversely influence resident fish populations (Meehan 1991).

Incidental take associated with grazing actions is expected from detrimental effects on aquatic habitat parameters including substrate quality, turbidity, and suspended sediment levels, all of which may directly affect the life history of these fish. The incidental take statement in this Opinion includes reasonable and prudent measures to minimize incidental take from grazing actions.

### Mining

Possible effects of mining activities on fish and fish habitats are summarized by Nelson et al. (1991). These effects include: sediment production from tailings piles, stock piles, and haul roads; changes in stream channel morphology; and changes in stream flow regimes. Certain types of mining operations can also result in acid mine drainage into streams and release of toxic metals such as arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, and zinc into streams. In addition, chemicals such as drilling fluids, flotation reagents, and cyanide used in exploration and precious metal extraction may be released into streams. These substances can reduce or eliminate aquatic invertebrate populations which serve as food for fish or, in sufficient concentration, can result directly in fish kills.

The use of portable suction dredges to recover gold from streambeds can adversely impact salmonid eggs and sac fry which may be present in stream gravels. Salmonid eggs and fry can be crushed by the dredging process or displaced from the redd and exposed to predators. Disturbance of the stream substrate by dredging can also cause sediment to be transported downstream where it can settle out and smother eggs and fry in redds (IDWR 1996). Since small suction dredges are usually powered by a gasoline engine, there is the potential for small amounts of fuel to be spilled into a stream during refueling.

Incidental take associated with mining actions is expected from detrimental effects on aquatic habitat parameters including substrate quality, turbidity, and suspended sediment levels, all of which may directly affect the life history of

these fish. The incidental take statement in this Opinion includes reasonable and prudent measures to minimize incidental take from mining actions.

#### Rock quarry operation within riparian reserves

The primary water quality parameters potentially affected by the operation of rock quarries within riparian reserves are sediment and chemical contamination. Peak flows could be increased by accelerated run-off from rock quarry sites. Watershed condition indicators affected by rock quarries include increased road density and an increase in watershed disturbance.

Incidental take associated with the operation of rock quarries within riparian reserves is expected from detrimental effects on aquatic habitat parameters including substrate quality, turbidity, and suspended sediment levels, all of which may directly affect the life history of these fish. The incidental take statement in this Opinion includes reasonable and prudent measures to minimize incidental take from riparian rock quarry actions.

#### **4. Implications of LRMP and RMP Management Direction for Assessing Effects of Individual and Groups of Actions**

The site- and watershed-scale environmental baseline and expected effects associated with individual or groups of projects will be evaluated via use of the procedures outlined in the document "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996; Attachment 3). These evaluation methods were designed to ensure that Level 1 teams can efficiently provide adequate information in a tabular form in BAs to evaluate effects of actions subject to ESA section 7 conferences and consultations. Effects of actions are expressed in terms of the expected effect (i.e., restore, maintain, or degrade proper functioning) on each of approximately 17 aquatic habitat factors in the project area (site and watershed scales), as described in the "Checklist for documenting environmental baseline and effects of the action" (Checklist) completed for each action.

The evaluation procedures in NMFS (1996) are based on a "Matrix of Pathways and Indicators" (Matrix), a holistic method for characterizing environmental baseline conditions

and predicting the effects of human activities on those baseline conditions. The Matrix provides generalized ranges of functional values (i.e., properly functioning, at risk, and not properly functioning) for aquatic, riparian, and watershed parameters. The NMFS acknowledges that generalized values provided in the Matrix may not be appropriate for all watersheds within the range of Pacific salmonids. Therefore, it encourages development of more biologically-appropriate matrices (referred to as "modified" matrices) in specific physiographic areas. Modified matrices were developed for four coastal Oregon physiographic areas: Western Cascades, High Cascades, Klamath Mountains and Southwest Oregon Tyee Sandstone (see Appendix to the BA). In addition to the four modified matrices appended to the BA, Level 1 teams have also modified matrix values to reflect habitat conditions in the Tyee Sandstone physiographic area of the Oregon Coast Range Province (Attachment 1).

A primary source of environmental baseline information is watershed analysis reports. Each of the ten LRMPs and RMPs require watershed analysis to be completed in key watersheds, roadless areas, and riparian reserves prior to determining how proposed land management activities meet ACS objectives. The NMFS expects that where listed, proposed or candidate salmonid species are present, each watershed analysis will include salmonid habitat conservation as a "key issue." This will ensure that watershed analysis reports provide adequate information for establishing the watershed-scale environmental baseline through use of the Matrix and Checklist. Consideration of salmonid habitat as a key issue in watershed analysis will also ensure that the analysis report identifies recommendations and priorities for salmonid habitat restoration needs in the watershed. Further guidance on how to address salmonid conservation as a key watershed analysis issue can be found in *Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis* (RIEC 1995), and associated analytical modules, especially *Physical Stream Habitat* and *Aquatic Species Viability* (REO 1996). Completed watershed analysis reports will need to be reviewed and supplemented, if necessary, to include this information.

Currently, NMFS applies the three criteria described in Attachment 2 for determining whether proposed actions would jeopardize the continued existence of listed UR cutthroat trout. These criteria are: (1) essential components of LRMPs

and RMPs, including ACS objectives, watershed analysis, restoration, land allocations, and standards and guidelines, will be fully applied at the four spatial scales of implementation (region, province, watershed, and site or project); (2) management actions will comply with all applicable land allocations and standards and guidelines; and (3) management actions will promote attainment of the ACS objectives. Should OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, or coastal cutthroat trout be listed under the ESA, the NMFS will evaluate the effects of future USFS and BLM actions using these same criteria.

A pivotal issue in applying these criteria is determining whether proposed actions are properly designed and mitigated to ensure full attainment of ACS objectives. The NFP ROD establishes clear direction to the land management agencies regarding the design and review of actions to meet ACS objectives:

The important phrases in these standards and guidelines are "meet Aquatic Conservation Strategy objectives," "does not retard or prevent attainment of Aquatic Conservation Strategy objectives," and "attain Aquatic Conservation Strategy objectives." These phrases, coupled with the phrase "maintain and restore" within each of the Aquatic Conservation Strategy objectives, define the context for agency review and implementation of management activities. Complying with the Aquatic Conservation Strategy objectives means that an agency must manage the riparian-dependent resources to maintain the existing condition or implement actions to restore conditions. The baseline from which to assess maintaining or restoring the condition is developed through a watershed analysis. Improvement relates to restoring biological and physical processes within their ranges of natural variability.

The standards and guidelines are designed to focus the review of proposed and certain existing projects to determine compatibility with the Aquatic Conservation Strategy objectives. The standards and guidelines focus on "meeting" and "not preventing attainment" of Aquatic Conservation Strategy objectives. The intent is to ensure that a decision maker must find that the proposed management activity is consistent with the Aquatic Conservation Strategy objectives. The decision maker will use the results of watershed analysis to support the finding. In order to make the finding that a project or management action "meets" or "does not prevent attainment" of the Aquatic Conservation Strategy objectives, the analysis must include a description of the

existing condition, a description of the range of natural variability of the important physical and biological components of a given watershed, and how the proposed project or management action maintains the existing condition or moves it within the range of natural variability. Management actions that do not maintain the existing condition or lead to improved conditions in the long term would not "meet" the intent of the Aquatic Conservation Strategy and thus, should not be implemented. (NFP ROD, pages B-9 and B-10).

Notwithstanding the potential for minor, short-term adverse effects, actions such as those described above that are fully consistent with the ACS objectives, land allocations, and standards and guidelines are expected to maintain or restore essential aquatic habitat functions, and should not impede recovery of Pacific salmonid habitat, a long-term goal of the LRMPs and RMPs. The specific benefits of ACS components for providing short-term protection and long-term recovery of aquatic habitats are described in Attachment 1.

## **5. Consultation on Beneficial and Non-beneficial LAA Actions**

This Opinion, use of the Matrix and Checklist, and future Level 1 team meetings are expected to further streamline and expedite formal consultation processes for the categories of LAA actions described in this Opinion; i.e., instream fish habitat enhancement and restoration projects, culvert replacement upgrades, actions related to the decommissioning of existing roads, road construction, livestock grazing, mining, and rock quarry operation within riparian reserves. This expectation is based on the assumption that Level 1 teams will review all such proposed actions to determine whether action-specific circumstances would necessitate additional measures to avoid or minimize adverse effects to listed species beyond those listed in the incidental take statement of this Opinion. In cases where no further measures are required, the NMFS will tier section 7 compliance to this Opinion via memoranda to the file and action agencies. Similarly, the USFS and BLM will update the environmental baseline. In cases where the Level 1 team determines that additional measures to avoid or minimize adverse effects are necessary, the NMFS will need to prepare a new biological opinion to conclude formal consultation. These procedures are further defined in section X. of this Opinion.

In addition to the project categories described above, it is likely that Level 1 teams will be able to determine that additional LAA actions are adequately mitigated by application of relevant standards and guidelines and therefore require no additional measures to avoid or minimize adverse effects to listed species. In cases where the Level 1 team concurs that no further measures are required, the NMFS will also tier section 7 compliance to this Opinion via memoranda to the files and action agencies, and the USFS and BLM will update the environmental baseline. Again, in cases where Level 1 teams determine that additional measures to avoid or minimize adverse effects are necessary, the NMFS will need to prepare a new biological opinion to conclude formal consultation.

Use of the effects determination Matrix and the Checklist for all USFS and BLM actions will allow the environmental baseline to be updated as new projects or groups of projects are contemplated. Appropriate use of the Matrix and Checklist will be monitored during periodic meetings of Level 1 teams. Effective implementation of the streamlined consultation process will be monitored on an ad hoc (or periodic) basis via Level 2 team oversight and Level 3 team technical reviews, as established in the May 31, 1995, interagency consultation streamlining agreement and August 29, 1995, and February 26, 1997, consultation processes.

#### **D. Cumulative Effects**

Cumulative effects are defined as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 CFR § 402.02). For the purposes of this consultation, the action area includes those portions of the ten administrative units within the five subject ESUs, additional Federal lands upstream of the ESUs in the Umpqua River basin and the Rogue River basin, and river reaches downstream of the administrative unit boundaries that may be affected by Federal land management activities.

Within the range of UR cutthroat trout (the Umpqua River Basin), approximately 47% of the land is Federally managed. The remaining 53% is made up of private, county, and State land consisting primarily of agricultural and forest land. Historically, agriculture, livestock grazing, forestry and other activities on non-Federal land in the Umpqua River Basin

have contributed substantially to temperature and sediment problems in the Umpqua River Basin (USDI-BLM 1996c, 1996d, 1996e; USDA-FS 1995). Conditions on and activities within non-Federal riparian areas along stream reaches downstream of the USFS and BLM land presently exert a greater influence on river temperatures and probably contribute more sediment to the habitat of UR cutthroat trout and other Pacific salmonids in the Umpqua River Basin than the USFS and BLM land (USDI-BLM 1996c, 1996d, 1996e; USDA-FS 1995).

Land ownership within the range of OC coho salmon and OC steelhead consist of approximately 35% Federal lands, 9% State lands, and 56% private/other lands. Land ownership within the range of SONC coho salmon consists of approximately 53% Federal lands, 1% State lands, and 46% private/other lands of the inclusive watersheds. Land ownership within the range of KMP steelhead consists of approximately 64% Federal land, and the majority of these lands are administered by the USFS and the BLM (also signatory to the NFP). Of the remaining non-Federal land, ownership consists of approximately 1% State land and 35% private/other.

The dominant land-use activities on non-Federal lands within the watersheds inhabited by all five of the ESUs considered in this Opinion are forestry and agriculture. A small, but increasing, proportion of this non-Federal land is being used for urban growth.

A substantial portion of spawning and rearing habitat for UR cutthroat trout, OC and SONC coho salmon, and OC and KMP steelhead trout occurs on USFS and BLM lands. Gradual improvements in habitat conditions for salmonids are expected on these lands as a result of LRMP and RMP implementation.

Significant improvements in UR cutthroat trout, OC and SONC coho salmon, and OC and KMP steelhead trout production outside of USFS and BLM lands is unlikely without changes in forestry, agricultural, and other practices occurring within non-Federal riparian areas. The NMFS is presently reviewing the State of Oregon's Coastal Salmon Recovery Initiative, through which the State intends to demonstrate improved land management practices on non-Federal lands. The NMFS is not currently aware of any general changes to existing State and private activities within the action area that would cause greater impacts than presently occur to any of the salmonid species considered in this Opinion.



Now that UR cutthroat trout is listed as endangered, NMFS assumes that non-Federal land owners will take steps to curtail or avoid land management practices that would result in unauthorized take of UR cutthroat trout. For actions on non-Federal lands which the landowner or administering non-Federal agency believes are likely to result in adverse effects to UR cutthroat trout or their habitat, the landowner or agency should work with the NMFS to obtain the appropriate section 10 incidental take permits, which generally require submission of Habitat Conservation Plans. If a take permit is requested, NMFS would seek appropriate measures to avoid or minimize adverse effects and taking of listed fish.

Until improvements in non-Federal land management practices are actually implemented, the NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Should any of the other species considered in this Opinion be listed under the ESA, the NMFS assumes that non-Federal land owners in those areas will also take steps to curtail or avoid land management practices that would result in the take of those species. Such actions may be prohibited by section 9 of the ESA, and subject to the incidental take permitting process under section 10 of the ESA. Future Federal actions, including the ongoing operation of hydropower projects, hatcheries, fisheries, and land management activities will be reviewed through separate section 7 processes. In addition, non-Federal actions that require authorization under section 10 of the ESA will be considered in the environmental baseline for future section 7 consultations.

## **VI. Conclusion**

### **Continued Implementation of LRMPs and RMPs**

NMFS has determined, based on the information and analysis described in this Opinion and attachments, that implementation of the LRMPs and RMPs for the ten administrative units is not likely to jeopardize the continued existence of UR cutthroat trout, OC or SONC coho salmon, OC or KMP steelhead, chinook salmon, chum salmon, or coastal cutthroat trout.

### NLAA Actions

As described in this opinion, the NMFS is unable to conclude section 7 consultation with this Opinion for all Federal actions within the ten affected administrative units determined NLAA as requested. These actions are not explicitly described in the BA, nor is the NMFS able to predict and evaluate the effects of all potential future actions that might be determined NLAA listed, proposed, or candidate Pacific salmonid species in the future.

The NMFS fully supports the evaluation procedures established in NMFS (1996), as applied through the interagency consultation streamlining process, to fulfill ESA section 7 informal consultation requirements for actions determined NLAA listed species. However, for the purposes of this Opinion, the NMFS does not consider application of these evaluation procedures and consultation processes to be a discrete action subject to consultation.

### LAA Actions

The NMFS is unable to conclude formal consultation for individual projects within seven categories of LAA programmatic actions evaluated in this Opinion; i.e., instream fish habitat enhancement and restoration projects, culvert replacement upgrades, road decommissioning, road construction, livestock grazing, mining, and rock quarries in riparian reserves. The NMFS has determined, however, based on the information and analysis described in this Opinion and attachments, that it is possible to design and implement these types of actions in a manner that is not likely to jeopardize the continued existence of UR cutthroat trout, OC or SONC coho salmon, OC or KMP steelhead, chinook salmon, chum salmon, or coastal cutthroat trout. The NMFS expects that this Opinion, use of the evaluation procedures in NMFS (1996) by Level 1 teams, and the interagency consultation streamlining process, will collectively streamline and expedite formal consultation processes for these actions.

Because these categories of actions may result in more than a negligible likelihood of incidental take, even when designed and implemented in accordance with all relevant LRMP and RMP direction, the NMFS has developed a standardized set of reasonable and prudent measures and associated terms and conditions to minimize the likelihood of incidental take for

each programmatic action category (see sections X.C. and X.D. below). The NMFS expects that Level 1 teams will review future proposed actions to determine whether action-specific circumstances would necessitate additional measures to avoid or minimize adverse effects to listed species beyond those listed in the incidental take statement of this Opinion.

#### Basis for Determinations

These determinations are based on the following conclusions and assumptions:

1. Implementation of management direction provided in the LRMPs and RMPs, which includes the components of the ACS, will result in improved habitat conditions for salmonids considered in this Opinion over the next few decades and into the future. Implementation of actions consistent with the ACS objectives and components - including watershed analysis, watershed restoration, reserve and refugia land allocations (riparian reserves, key watersheds, late successional reserves, etc.) and associated standards and guidelines - will provide high levels of aquatic ecosystem understanding, protection, and restoration for aquatic habitat-dependent species. The NMFS criteria for determining whether actions would be likely to jeopardize listed and proposed salmonid species, based on compliance with the ACS objectives and components, is described in Attachment 2.
2. Improved habitat conditions for salmonids considered in this Opinion will result in increased survival of the freshwater life-stages of these fish. The relationship between habitat conditions and survival of freshwater lifestages of salmonid species considered in this Opinion are described in Attachment 1.
3. The FEMAT determined that implementation of the NFP amendments to LRMPs and RMPs would result in an 80% or greater likelihood of providing sufficient aquatic habitat to support stable, well distributed populations of Pacific salmonids as they occur on and are affected by the Federal lands within the subject administrative units.

4. Level 1 and 2 teams, as established in the May 31, 1995, interagency consultation streamlining agreement, will follow the August 29, 1995, and February 26, 1997, interagency consultation processes to ensure that future individual and grouped USFS and BLM actions are consistent with ACS objectives and include appropriate measures to avoid or minimize adverse effects to listed, proposed or candidate salmonid species.
5. Use of a consistent, agreed-upon effects determination methodology (NMFS 1996) will support efficient, accurate assessments of the environmental baseline and will further ensure that future individual and grouped USFS and BLM actions are consistent with ACS objectives important to listed, proposed or candidate salmonid species.
6. Level 1 teams will apply the Matrix and Checklist when making determinations of effect (e.g., NLAA or LAA) for all future USFS and BLM actions. Use of the Checklist and interagency discussions by Level 1 teams will constitute informal consultation for NLAA actions. In cases where Level 1 teams agree on NLAA effect determinations, NMFS will conclude informal consultation with memoranda to the files and action agencies documenting concurrence with the determination.
7. This Opinion, use of the Matrix and Checklist, and interagency discussions during Level 1 team meetings will satisfy formal consultation requirements for LAA actions for which Level 1 teams have determined and documented that no additional measures are needed to avoid or minimize adverse effects to listed species beyond those listed in the incidental take statement of this Opinion. The NMFS will tier section 7 compliance to this Opinion via memoranda to the file and action agencies. Similarly, the USFS and BLM will update the environmental baseline. In cases where Level 1 teams determine that additional measures to avoid or minimize adverse effects are necessary, the NMFS will need to prepare a new biological opinion to conclude formal consultation.

8. Future non-Federal actions within the range of the salmonids considered in this Opinion that may result in the take of listed species will be addressed during future section 10 permitting and considered in the environmental baseline of section 7 consultations.
9. Current and future monitoring efforts, including regional implementation and effectiveness monitoring programs, will facilitate the adaptive management process in determining whether changes in land allocations or standards and guidelines are needed in order to achieve LRMP and RMP goals and ACS objectives.

## **VII. Conservation Recommendations**

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information.

The NMFS believes the following conservation recommendations are consistent with these obligations, and therefore should be implemented by each of the ten administrative units. The NMFS also recommends these measures because they are expected to further streamline future section 7 consultations for proposed actions:

### **Ecosystem Analysis**

1. To provide an appropriate intermediate-scale context for watershed analyses, each administrative unit should complete coordinated assessments for all major river basins (e.g., third or fourth field hydrologic units) within the action area. A key issue in each should be assessment of aquatic ecosystem health and restoration, including salmonid habitat.
2. To expedite the timely restoration of important salmonid habitats, each administrative unit should consider the potential contribution of individual watersheds to the recovery of Pacific salmonid species as a primary factor

when prioritizing watershed analysis efforts. This information is generally developed through river basin or other intermediate-scale assessments.

3. To provide information for evaluating watershed-scale environmental baseline conditions using the Matrix and Checklist, the analysis of all watersheds where listed, proposed, or candidate salmonid species are present should include salmonid conservation as a key issue. Methods for addressing salmonid conservation as a key watershed analysis issue are described in *Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis* (RIEC 1995), and associated analytical modules, especially *Physical Stream Habitat* and *Aquatic Species Viability* (REO 1996).
4. To provide a more comprehensive description of salmonid habitat conditions and conservation needs at the watershed-scale, the administrative units should develop options for more extensive consideration of non-Federal lands and for coordinating with local watershed councils during watershed analysis, including incentives and opportunities for non-Federal landowner participation.

#### Watershed Restoration

5. To maximize the utility of watershed analyses and to expedite salmonid habitat recovery, watershed analysis reports should include recommendations for identifying and prioritizing actions needed to maintain and restore properly functioning native aquatic communities in the watershed.
6. To promote long-term ecosystem recovery, actions that restore landscapes and aquatic ecosystem processes (e.g., reestablishment of floodplain functions through road decommissioning) should be prioritized over instream habitat enhancement projects that provide short-term benefits.
7. To ensure that Federal restoration projects/activities are well coordinated and complement similar efforts by States, tribes, other landowners, governments, and local watershed councils, the administrative units should work with their Provincial Interagency Executive Committees

(PIECs) and Province Advisory Committees (PACs) to establish priority river basins and watersheds for restoration and to identify opportunities for cooperative analysis and funding to support restoration projects.

8. To complement restoration efforts on Federal lands, explore opportunities to fund restoration projects on adjacent non-Federal lands identified as high priority within the action area.

#### Adaptive Management

9. To apply the adaptive management process when implementing the LRMPs and RMPs, each administrative unit should review information developed through watershed and river basin analyses to determine whether the key watershed and reserve network within the range of UR cutthroat trout, OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout on each administrative unit needs to be expanded or otherwise modified to incorporate additional strongholds, refugia, or core habitat areas used by these fish.
10. Planning and analysis teams associated with each of the Adaptive Management Areas (AMAs) should work closely with local watershed councils to identify innovative salmonid habitat restoration approaches for each AMA.

#### Road and Timber Sale Planning

11. Adverse effects of existing road systems should be mitigated through the expeditious development and implementation of cooperative interagency road restoration programs. Reductions in existing road miles and hazards should be achieved in watersheds that support Pacific salmonid production areas (especially in key watersheds), and expected benefits to native aquatic communities should be a primary factor considered during prioritization of watersheds for road mileage reductions.
12. To facilitate ESA consultation and to minimize site and combined watershed-scale effects of future timber harvest, the administrative units should coordinate long-term timber harvest planning on river basin and watershed scales. The results of watershed analyses, river basin

or provincial assessments (such as the Umpqua River Basin Assessment being conducted by the Southwest Oregon PIEC), and other relevant information should be utilized when planning timber harvest to assure that ACS objectives are fully attained.

13. To minimize local effects of timber harvest on salmonid habitat from sedimentation, the administrative units should design appropriate yarding systems for timber sales to ensure attainment of ACS objectives (e.g., avoid operating ground skidders within riparian reserves or unstable soils, suspend logs when yarding across perennial streams, etc.).

#### Mining

14. To protect Pacific salmonid production areas, the ten administrative units should use the full extent of their authorities to ensure that new mines and other mining operations are located outside of riparian reserves, and that support facilities (e.g., roads) do not present an unacceptable risk to native aquatic communities.
15. To minimize future adverse effects to salmonid habitat from mining, each administrative unit should use the full extent of their authorities to withdraw key refugia, strongholds and core salmonid habitat areas from mining development. These key habitat areas should be identified by reviewing the results of state, provincial, river basin and watershed analyses.

#### Grazing

16. To reduce the likelihood of candidate species being listed under the ESA in the future, grazing on all allotments managed by the ten administrative units within the action area should be managed to achieve sustainable, healthy, productive ecosystems.

#### Monitoring

17. To maintain current knowledge of important fish production areas and the overall success of habitat protection and restoration efforts, each of the ten administrative units should continue to conduct stream surveys and monitor fish populations on lands they



administer. These efforts are in addition to contributing as necessary to regional implementation and effectiveness monitoring efforts.

In order for the NMFS to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed, proposed, or candidate Pacific salmonids or their habitat, NMFS requests notification of the implementation of these conservation recommendations.

#### **VIII. Reinitiation of Consultation**

Based on the effects of the proposed actions described in the BA and this Opinion, NMFS anticipates that an unquantifiable amount of incidental take could occur. To ensure protection for a species assigned an unquantifiable level of take, this consultation (or conference in the case of OC and SONC coho salmon, OC and KMP steelhead, chum salmon, chinook salmon, and/or coastal cutthroat trout) must be reinitiated if: (1) the amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR § 402.16). For example, conferencing or consultation (should steelhead or coho salmon be listed) must be reinitiated if any of the following occurs:

1. Implementation monitoring results indicate that individual actions are not carried out as described in BAs or other environmental documentation (e.g., National Environmental Policy Act documents), or as considered during Checklist completion and/or Level 1 team meetings;
2. The NMFS, USFS, or BLM determine that implementation monitoring efforts are insufficient to ensure project compliance with LRMPs or RMPs;
3. The NMFS, USFS, or BLM determine that sufficient progress is not made in development and implementation of an adequate effectiveness monitoring program;

4. The NMFS, USFS, or BLM determine that effectiveness monitoring results indicate that LRMP or RMP implementation is not resulting in attainment of ACS objectives as expected.
5. The NMFS, USFS, or BLM determine that the streamlined interagency consultation processes, as described in this Opinion, in the May 31, 1995, interagency consultation streamlining agreement, and the August 29, 1995, and February 26, 1997, interagency consultation process, are not functioning as intended.
6. New information on the biological requirements of Pacific salmonids becomes available that would lead NMFS to revise its Matrix of Pathways and Indicators (NMFS 1996) to more accurately characterize salmonid habitat requirements and/or the process for evaluating the effects of proposed actions. (The normal modification of the Matrix of Pathways and Indicators to reflect local conditions by Level 1 teams is expected and would generally not trigger reinitiation.)

## **IX. References**

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the sources of data, information and references used in developing this Opinion in addition to the BA and additional information requested by the NMFS and provided by the ten administrative units.

Alverts, B., A. Horton, and B. Stone. 1996 draft. Results of the FY 1996 (pilot year) implementation monitoring program for management of habitat for late-succession and old-growth forest related species within the range of the Northern spotted owl. Regional Implementation Monitoring Team, Research and Monitoring Committee, Regional Ecosystem Office, P.O. Box 3623, Portland, Oregon 97208. November 1, 1996, final draft. 46 pages with appendices.

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## **X. Incidental Take Statement**

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

The measures described below are non-discretionary. They must be implemented by the action agency so that they become binding conditions necessary in order for the exemption in section 7(o)(2) to apply. The ten administrative units have a continuing duty to regulate the activity covered in this incidental take statement. If the ten administrative units (1) fail to adhere to the terms and conditions of the incidental take statement, and/or (2) fail to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Should any of the species, in addition to the already listed UR cutthroat trout, addressed in this Opinion (OC and SONC coho salmon, OC and KMP steelhead trout, chinook salmon, chum salmon, and coastal cutthroat trout) be listed under the ESA,

the NMFS expects that this Opinion will be the basis of a biological opinion for those ESUs. Further, the following Incidental Take Statement is expected to become effective following the NMFS' adoption of this Opinion as the biological opinion once an OC and SONC coho salmon, OC and KMP steelhead trout, chum salmon, chinook salmon, and/or coastal cutthroat trout listing becomes final (50 CFR § 402.10(d)).

#### **A. Amount or Extent of the Take**

This incidental take statement addresses both scales of actions addressed in this Opinion: 1) continued implementation of LRMPs and RMPs for the ten subject administrative units; and 2) certain categories of programmatic LAA actions implemented by the administrative units pursuant to the subject LRMPs and RMPs.

##### Continued LRMP and RMP Implementation

Notwithstanding the NMFS' conclusion that continued implementation of management direction in the subject LRMPs and RMPs is not expected to jeopardize the continued existence of listed (UR cutthroat trout), proposed (coho salmon and steelhead) and candidate (chinook salmon, chum salmon, and coastal cutthroat trout) species, agency decision makers retain enough discretion when implementing management direction in the LRMPs and RMPs that the NMFS anticipates more than a negligible likelihood of incidental take of these species from such actions. The NMFS is unable to anticipate all possible circumstances related to continued LRMP and RMP implementation, including programmatic actions or individual projects that might be developed in the future. As a result, the NMFS is unable to issue a "blanket" incidental take statement or a comprehensive list of reasonable and prudent measures to cover all programs and actions subsequently implemented pursuant to LRMP and RMP management direction.

The NMFS is able to prescribe reasonable and prudent measures that will reduce the overall expected level of incidental take associated with continued implementation of LRMP and RMP management direction by ensuring that planned actions are fully consistent with the ACS objectives. These reasonable and prudent measures are based on a process for evaluating and screening proposed actions that is described in the BA. The evaluation and screening of proposed actions is accomplished through the ESA consultation process developed to implement

the May 31, 1995, interagency streamlining agreement and the Matrix of Pathways and Indicators from NMFS (1996). Interagency Level 1 teams evaluate the effects of proposed actions against the environmental baseline at project and watershed scales. They determine whether effects to listed, proposed, and candidate species have been minimized by fully applying the relevant LRMP and RMP management direction and relevant terms and conditions from this Opinion in the design of proposed actions.

The first step in this process, in fact the ultimate goal of Level 1 review, is to design actions that are not likely to adversely affect listed, proposed or candidate salmonid species, and thus avoid the likelihood of incidental take and the need for formal consultation. The second step in the process, for those cases where adverse effects are likely to occur, is for the Level 1 team to incorporate adequate measures into the proposed actions to minimize the likelihood of incidental take, with the goal of avoiding the need for additional reasonable and prudent measures beyond those described in this incidental take statement. Finally, in those cases where the Level 1 team is unsuccessful in meeting either of these two steps; i.e., in cases where proposed actions are LAA listed or proposed species and additional measures are needed to minimize incidental take, the NMFS will need to prepare a new biological opinion to conclude formal consultation.

It is also appropriate to prescribe reasonable and prudent measures to minimize the likelihood of incidental take associated with implementation actions for which decisions are made at the LRMP and RMP scale. For example, the decision to withdraw portions of the planning areas from mining development lies at the LRMP and RMP scale.

#### Programmatic LAA Actions

The NMFS anticipates that some actions which are fully consistent with LRMP and RMP standards and guidelines may still have more than a negligible likelihood to result in incidental take of listed UR cutthroat trout. This includes actions considered to be beneficial to the species (e.g., instream habitat enhancement and restoration projects, culvert replacement upgrades, and road decommissioning projects), as well as non-beneficial actions (e.g., road construction, livestock grazing, mining, and riparian rock quarry

operation). Incidental take associated with these types of projects is expected from detrimental effects on aquatic habitat parameters including substrate quality, turbidity, and suspended sediment levels, all of which may directly affect the life history of these fish.

Adverse effects of management actions such as these are largely unquantifiable in the short-term, and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, even though the NMFS expects some low level of incidental take to occur due to these actions, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves. In these instances, the NMFS designates the expected level of take as "unquantifiable."

## **B. Effect of the Take**

In this Opinion, NMFS has determined that the level of anticipated take associated with continued implementation of the LRMPs and RMPs is not likely to result in jeopardy to the listed UR cutthroat trout. Likewise, should the OC and SONC coho salmon, OC and KMP steelhead, chinook salmon, chum salmon, and/or coastal cutthroat trout covered by this Opinion be listed, the anticipated levels of take for those species is not likely to result in jeopardy.

The NMFS is not authorizing the incidental take of listed UR cutthroat trout for any specific programmatic action addressed in this Opinion. Instead, the reasonable and prudent measures and associated terms and conditions are provided for the purpose of streamlining and expediting future formal consultations for these actions, based on Level 1 team review of individual or groups of actions. In cases where NMFS and the Level 1 team concur that proposed actions are designed to fully incorporate the relevant terms and conditions from this incidental take statement, NMFS will tier the section 7 compliance for such actions and conclude formal consultation with memoranda to the files and action agencies.

## **C. Reasonable and Prudent Measures**

### Continued LRMP and RMP Implementation

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of UR cutthroat trout resulting from continued implementation of the ten subject LRMPs and RMPs. Should OC and SONC coho salmon, OC and KMP steelhead, chinook salmon, chum salmon, and/or coastal cutthroat trout be listed, these reasonable and prudent measures would also be necessary to minimize take of those species.

Each administrative unit shall:

1. Apply the review criteria described on pages B-9 and B-10 of the NFP ROD (USDA-FS and USDI-BLM 1994) to ensure that proposed actions are fully consistent with applicable standards and guidelines and ACS objectives.
2. Utilize the Level 1 team consultation process and apply the NMFS' Checklist and Matrix of Pathways and Indicators (NMFS 1996) to:
  - a. evaluate all proposed actions that may affect listed, proposed or candidate species of Pacific salmonids;
  - b. determine whether proposed actions are either NLAA or LAA these species;
  - c. carry out the required interagency coordination to complete the consultation process informally or formally; and
  - d. update the environmental baseline to include proposed actions once consultation is concluded.
3. To protect essential Pacific salmonid habitat stronghold areas, determine whether future mining development would adversely impact at-risk areas, in accordance with relevant land use and planning regulations, and apply suitable administrative remedies, including withdrawal, if necessary.

### Programmatic LAA Actions

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of UR cutthroat trout resulting from individual actions within seven categories of programmatic actions described above (i.e., instream habitat enhancement and restoration projects, culvert replacement upgrades, road decommissioning, road construction, livestock grazing, mining, and riparian rock quarry operation). Should OC and SONC coho salmon, OC and KMP steelhead, chinook salmon, chum salmon, and/or coastal cutthroat trout be listed, these reasonable and prudent measures would also be necessary to minimize take of those species.

### Beneficial Actions

Each administrative unit shall:

4. Apply the results of watershed analysis, use interagency review processes and consider expected benefits to listed, proposed, and candidate Pacific salmonids during the design and prioritization of instream habitat enhancement and restoration projects, culvert replacement upgrades, and road decommissioning actions. To promote long-term ecosystem recovery, actions that restore landscapes and aquatic ecosystem processes should be prioritized over instream habitat enhancement projects that provide short-term benefits.
5. Ensure that the timing of any work within intermittent or perennial stream channels associated with these projects is designed to minimize short-term adverse effects to aquatic habitat and listed, proposed, and candidate Pacific salmonids.
6. Ensure that applicable Best Management Practices (BMPs) are used to minimize short-term adverse effects to aquatic habitat and listed, proposed, and candidate Pacific salmonids. Implement appropriate monitoring measures to document compliance with BMPs.
7. Assess the associated watershed-scale environmental baseline and effects of the proposed action to ensure that the project is appropriate and timely.

## Road Construction

Each administrative unit shall:

8. Avoid or minimize the adverse effects of road construction on salmonid habitat components, particularly water quality, flow and hydrology, and channel condition and dynamics<sup>3</sup>.

## Livestock Grazing

Each administrative unit shall:

9. Review, modify, and implement allotment management plans (AMPs), annual operating plans (AOPs), or term grazing permits for those allotments/leases which encompass streams known or suspected to contain Pacific salmonid species addressed in this Opinion to ensure continual and timely achievement of ACS objectives.
10. Schedule grazing around known or suspected spawning location and timing, in allotments containing streams with listed, proposed, or candidate Pacific salmonids, to prevent trampling of redds and other direct effects that result in take of the species.
11. Monitor the success of measures to minimize incidental take from grazing activities.

## Mining

Each administrative unit shall:

12. Minimize the adverse effects of mining actions, including placer mining, recreational suction dredging, and gold panning, that result in take of the species by implementing all relevant standards and guidelines (e.g., NFP ROD pages C-1, C-34, and C-35).

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<sup>3</sup> Roads associated with timber sales will usually be consulted on as an interrelated and interdependent part of the sale. If the Level 1 team determines, with NMFS concurrence, that no additional terms and conditions are necessary for the timber harvest, then the terms and conditions implementing this reasonable and prudent measure for roads can be tiered to this biological opinion.

13. Monitor the effects of mining in a consistent manner so that data are comparable between years and sample sites.

#### Rock Quarry Operation

Each administrative unit shall:

14. Minimize the adverse effects of rock quarry operation within riparian reserves on listed salmonids and their habitat by avoiding activities during winter months with the potential to generate and deliver sediment to streams.

#### **D. Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the ESA, the ten administrative units must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary. The ten administrative units shall do the following:

#### Continued LRMP and RMP Implementation

1. To ensure that proposed actions designed in accordance with relevant standards and guidelines are in fact consistent with the NFP ACS objectives, USFS and BLM decision makers will apply the results of watershed analysis and other relevant information to reach findings that actions either "meet" or "do not prevent attainment" of the ACS objectives.
  - a. The finding must be supported by an analysis that includes a description of the existing condition, a description of the range of natural variability of the important physical and biological components of a given watershed, and how the proposed project or management action maintains the existing condition or moves it within the range of natural variability.
  - b. Management actions that do not maintain the existing condition or lead to improved conditions in the long term would not "meet" the intent of the Aquatic Conservation Strategy and thus should not be implemented.



2. a. To ensure that an interagency, interdisciplinary process is used to implement management direction in the LRMPs and RMPs, utilize the Level 1 team consultation process and apply the NMFS' Checklist and Matrix of Pathways and Indicators (NMFS 1996) to evaluate all proposed actions that may affect listed, proposed, or candidate species of Pacific salmonids.
- b. To facilitate the ESA consultation process and ensure agreement on effect determinations, utilize the Level 1 team process and apply the NMFS' Checklist and Matrix of Pathways and Indicators (NMFS 1996) to determine whether proposed actions are either NLAA or LAA listed, proposed, or candidate species of Pacific salmonids.
- c. To further streamline the consultation process and optimize the benefits of interagency coordination, utilize the Level 1 team process to complete informal and formal consultation on proposed actions that may affect listed, proposed, or candidate species of Pacific salmonids.
  - i. For actions that are NLAA listed species, complete informal consultation through use of the Checklist and associated interagency discussions during Level 1 team meetings. NMFS will prepare appropriate concurrence documentation for actions determined to be NLAA actions by Level 1 teams.
  - ii. For programmatic actions addressed in this Opinion that are LAA listed species (i.e., instream habitat enhancement and restoration projects, culvert replacement upgrades, road decommissioning, road construction, livestock grazing, mining, and riparian rock quarry operation), complete formal consultation through use of the Checklist and associated interagency discussions during Level 1 team meetings. When completing formal consultation, Level 1 teams will develop appropriate measures to avoid or minimize adverse effects to listed salmonid species and recommend such measures to the decision maker for incorporation into the

proposed action. Level 1 teams will determine whether the proposed actions fully incorporate the terms and conditions described in this incidental take statement. For proposed actions where the Level 1 team determines, with NMFS concurrence, that no further measures are required beyond those described in this Opinion, a separate biological opinion will not be required. The NMFS will prepare appropriate documentation to conclude formal consultation by tiering section 7 compliance for these actions to this Opinion via memoranda to the files and the action agencies. The USFS and BLM will update the environmental baseline.

- iii. For all other actions that are LAA listed species, complete formal consultation through use of the Checklist and associated interagency discussions during Level 1 team meetings as described above for 2.c.ii. For proposed actions where the Level 1 team determines, with NMFS concurrence, that no additional measures are required to avoid or minimize adverse effects to listed salmonids, a separate biological opinion will not be required. The NMFS will prepare appropriate documentation to conclude formal consultation by tiering section 7 compliance for these actions to this Opinion via memoranda to the files and the action agencies. The USFS and BLM will update the environmental baseline.

- IV. For actions that are LAA listed species where formal consultation cannot be concluded as described above (i.e., where the Level 1 team or NMFS concludes that additional measures are needed to avoid or minimize adverse effects to listed, proposed or candidate species), a separate formal consultation will be required. In these cases, formal consultation will be through the Level 1 team, using the Checklist. The NMFS will conclude formal consultation with the preparation of a separate biological opinion.

- d. To ensure that the environmental baseline is continually updated to include proposed actions once consultation is concluded, the USFS and BLM shall:
  - i. maintain a file of completed project and watershed Checklists and other related environmental documentation for each subject watershed; and
  - ii. update watershed analysis reports, as necessary, to reflect appreciable changes to the environmental baseline based on the effects of completed actions on salmonid habitat conditions.
- 3. To protect essential Pacific salmonid habitat stronghold areas, determine whether future mining development would adversely impact at-risk areas, in accordance with relevant land use and planning regulations, and apply suitable administrative remedies, including withdrawal, if necessary.
  - a. Review the results of completed assessments of Pacific salmonid habitat within each administrative unit (e.g., field surveys, watershed analyses, basin assessments, etc.) and identify essential salmonid habitat stronghold areas.
  - b. In conjunction with USFS and BLM mineral specialists, review existing, proposed, and potential mining activities within each administrative unit and work with the Level 1 teams to assess the potential for adverse effects to the essential salmonid stronghold habitat areas identified in step 3.a. above. Identify those stronghold habitat areas where mining effects cannot be mitigated pursuant to relevant LRMP and RMP management direction, mining regulations, or other administrative options.
  - c. For the at-risk stronghold areas identified in step 3.b. above, complete the relevant administrative processes to protect these areas from future mining development using suitable administrative remedies, including withdrawal, if necessary.

#### Programmatic LAA Actions: Beneficial Actions

4. Provide sufficient documentation of information and criteria used to design and prioritize instream habitat enhancement and restoration projects, culvert replacement upgrades, and road decommissioning actions at the Level 1 project review stage.
5. Provide sufficient documentation for Level 1 team review to demonstrate that the timing of in-channel work associated with the subject projects will minimize short-term adverse effects to aquatic habitat.
6. Provide documentation of compliance with applicable BMPs to supplement larger-scale (e.g., regional) implementation monitoring programs. Documentation of compliance with BMPs shall be aggregated with other monitoring data and included, where possible, in implementation monitoring reports.
7. To ensure that proposed projects are appropriate and timely, utilize information and recommendations from completed watershed analysis reports when determining the watershed-scale environmental baseline and effects of proposed actions using the Matrix and Checklist.

#### Programmatic LAA Actions: Road Construction

8. To avoid or minimize incidental take associated with the adverse effects of road construction on water quality, flow and hydrology, and channel condition and dynamics, each administrative unit shall apply the following measures when implementing the pertinent standards and guidelines for road construction and decommissioning as described in the LRMPs and RMPs.
  - a. New roads (temporary, semi-permanent or permanent) in riparian reserves shall be minimized to the greatest extent possible, and shall be constructed only where watershed analyses have been completed to document that the roads would not prevent attainment of ACS objectives.
  - b. Construction of new permanent and semi-permanent roads shall be limited to stable areas or ridgetops. Permanent roads are those that are used after the

end of the contract, and semi-permanent roads are those that are used for longer than one dry season but are decommissioned at the end of the contract.

- c. Semi-permanent roads shall be decommissioned within one year after completion of timber sale activities associated with the harvest units they were built to access. The definition of "decommissioning" for this purpose includes those measures necessary to restore pre-road hydrologic functions and to minimize the risk of road-related sediment delivery to streams (e.g., culvert removal, decompaction of road surfaces (ripping), outsloping, waterbarring, fill removal, revegetating with native species, and roadway barricading to exclude vehicular traffic).
- d. When permanent and semi-permanent roads are constructed in key watersheds, road density shall be reduced in the same watershed (20-200 mi<sup>2</sup>) by decommissioning roads using the following guidelines:
  - i. Reduce road density by at least an equivalent mileage of the new road(s). The need for additional reductions in road density may be identified in watershed analysis reports. If watershed analyses are not available, a general guideline to provide a conservative reduction of risk to the listed species would be to decommission twice the length of new road constructed.
  - ii. The appropriate reduction in road density through decommissioning shall be identified prior to or concurrent with construction of new road miles. Decommissioning shall be completed within a reasonable time frame following construction of the new roads.
- e. When permanent and semi-permanent roads are constructed outside of key watersheds, the effects of new roads on salmonid habitat shall be mitigated using the following guidelines:
  - i. Reduce the density or impact of existing roads in the watershed by at least an equivalent

mileage or impact of the new road(s). Opportunities for decommissioning or reducing impacts from existing roads should be identified in watershed analysis reports.

- ii. Appropriate efforts to mitigate new road impacts by reducing existing road density or impacts shall be identified prior to or concurrent with construction of new road miles. Decommissioning or other mitigation measures shall be completed within a reasonable timeframe following construction of the new roads.
- f. Temporary roads shall be installed and decommissioned during the dry season of the same year (usually May 15 to October 15). Temporary roads will be decommissioned per the above definition.

Programmatic LAA Actions: Livestock Grazing

- 9. When reviewing and modifying grazing plans to minimize incidental take, incorporate the following terms and conditions:
  - a. Amend livestock grazing allotment plans or leases to incorporate appropriate criteria for evaluating ecological conditions of affected areas to ensure attainment of ACS objectives. The evaluation criteria should be developed by USFS and/or BLM range and other interdisciplinary specialists, in coordination with Level 1 teams.
  - b. Amend livestock grazing allotment plans or leases to require a qualitative review of current conditions within each allotment or lease area, using the evaluation criteria established in 9.a. above, prior to livestock turnout each year, to ensure that ACS objectives are met.
  - c. Amend livestock grazing allotment plans or leases to require monitoring of livestock use, as often as necessary, to ensure that ACS objectives are met.

10. To minimize incidental take of listed salmonids, eliminate livestock grazing prior to initiation of redd construction in allotments containing streams where salmonids covered by this Opinion are known or suspected to spawn.
  - a. Livestock turnout and/or removal dates will be modified, if necessary, on all grazing allotments to avoid the possibility of livestock trampling salmonid redds. If the permittee can demonstrate that grazing will not occur within the riparian areas of fish bearing streams, the dates may be modified through informal consultation.
11. To monitor the success of measures to minimize incidental take from grazing activities, implement the following terms and conditions:
  - a. Construct and maintain riparian exclosure(s) on individual or groups of allotments or leases that contain streams known or suspected to support populations of salmonids covered by this Opinion.
  - b. Prior to each grazing season, during regular intervals within the grazing season, and after the grazing season, riparian conditions within the exclosure(s) shall be evaluated and documented. Photo points shall be located along fence lines such that riparian conditions both within and outside the exclosure can be captured in a single photograph from each photo point.
  - c. A monitoring report summarizing grazing effects shall be submitted to the NMFS annually.

Programmatic LAA Actions: Mining

12. To minimize incidental take from mining activities, the following terms and conditions shall be implemented:
  - a. For small-scale mining activities where the administrative units do not retain discretion to require a Plan of Operations:

- i. Respond to all applicants within 15 days (or within the relevant response period) of the date when notices of intent are filed;
    - ii. Recommend that all mining activities be carried out in a manner consistent with the NFP standards and guidelines for minerals management to protect listed species (ROD C-1, C-34, C-35); and
    - iii. Inform applicants of the Section 9 prohibitions against taking listed species under the ESA.
  - b. For mining activities where the administrative units retain regulatory discretion to require a Plan of Operations, document compliance of each action with all applicable minerals management standards and guidelines for riparian reserves (e.g., NFP ROD, page C-34).
13. Monitor the effects of mining operations (such as sedimentation) and the success of reclamation efforts at selected mine sites. Reports from each administrative unit summarizing monitoring results shall be submitted to the NMFS annually.

Programmatic LAA Actions: Riparian Rock Quarry Operation

14. In order to minimize incidental take from rock quarry operation, the following terms and conditions shall be implemented:
- a. For quarries that occur within riparian reserves, allow activities with the potential to introduce sediment into streams to occur only during the dry season (usually May 15 to October 15).
  - b. If unusual circumstances (e.g., emergency road repair) require such activities to occur outside of the dry season, require all necessary BMPs and other mitigation measures to prevent sediment movement into streams.